SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

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THE SEVENTY-FOURTH ANNUAL MEETING

OF THE

British Medical Association,

TORONTO, CANADA, AUGUST 21st to 25th, 1906.

President:

GEORGE COOPER FRANKLIN, F.R.C.S.Eng., Surgeon, Leicester Infirmary, Leicester.

President-elect:

RICHARD ANDREWS REEVE, B.A., M.D., LL.D., Dean of the Faculty of Medicine, University of Toronto.

Chairman of Representative Meetings:

Sir VICTOR HORSLEY, F.R.C.S., F.R.S., Surgeon, University College Hospital; and Surgeon, National Hospital for Paralysed and Epileptic.

Chairman of Council:

HENRY WM. LANGLEY BROWNE, M.D., Ch.B., F.R.C.S.E., Consulting Surgeon, West Bromwich District Hospital.

Treasurer:

HY. RADCLIFFE CROCKER, M.D., F.R.C.P., Physician Skin Department, University College Hospital, London.

PROGRAMME OF BUSINESS.

An Address in Medicine will be delivered by Sir JAMES BARR, M.D., F.R.C.P., F.R.S.E.

An Address in Surgery will be delivered by Sir VICTOR HORSLEY, M.B., F.R.C.S., F.R.S.

An Address in Obstetrics will be delivered by WALTER SPENCER ANDERSON GRIFFITH, M.D., F.R.C.P.

THE SECTIONS.

There will be 13 Sections as shown in the subjoined list; they will meet on Tuesday, Wednesday, Thursday and Friday, August 21st, 22nd, 23rd and 24th, from 9.30 a.m. to 12.30 p.m.

The President, Vice-Presidents, and Secretaries of each Section constitute a Committee of Reference for that Section.

Papers read are the property of the British Medical Association, and cannot be published elsewhere than in the BRITISH MEDICAL JOURNAL *without special permission.*

No paper must exceed 15 minutes in reading, and no subsequent speech 10 minutes.

It is requested that copies of any papers offered in any

of the Sections should be supplied to one of the Honorary Secretaries of the Section, accompanied by a short abstract, in order that such abstract may be printed and circulated before the meeting.

Anatomy.

President: Professor Arthur Robinson, M.D., Birmingham.

Vice-Presidents: Professor Alexander Primrose, M.B., C.M., Toronto; David Edward Mundell, B.A., M.D., C.M., Kingston; David Waterston, M.D., F.R.C.S., F.R.S.E., Edinburgh.

Honorary Secretaries: Charles Buckingham Shuttleworth, M.D., C.M., F.R.C.S., 45, Bloor Street E., Toronto; Gawn Shaw Cleland, M.B., M.D., C.M., 730, Queen Street E., Toronto; J. Herbert Sanders, M.D., 1A, Palace Gardens Mansions, W.

This Section will meet on three and possibly four days for the reading and discussion of the following papers:

Paterson, Professor A. M. The Mechanical Supports of the Pelvic Viscera.

Huber, Professor G. C. (1) The Arteriae Rectae of the Mammalian Kidney. (2) The Form of the Uriniferous Tubules in Certain of the Lower Vertebrates.

Bardeen, Professor C. R. The Development and Variation of the Nerves of the Posterior Limb of Man.

MacMurrich, Professor J. Playfair. Preliminary Note on the Valves of the Iliac Veins.

Waterston, Dr. David. A Preliminary Note on the Brain and Skull in Mongolianism.

Jenkins, Dr. G. J. (1) The Morphology of the Human Hip-joint. (2) The Marginal Sinus.

Gladstone, Dr. R. A. A Symelian Monster.

Bensley, Dr. R. R. (1) The Structure of the Cardiac Glands of Mammals and their Phylogenetic Significance. (2) Reports from the Hull Laboratory of Anatomy on (*a*) the Cytological Characters of the Cellular Components of the Islets of Langerhans (M. A. Lane). (*b*) The Structure of the Lachrymal and Haversian Glands of Mammals (J. Sandwall).

Wilson, Dr. J. G. (1) The Anatomical Relations and the Blood Supply of the Palatine Tonsils. (2) An Unusual Peritoneal Anomaly simulating Retroperitoneal Hernia.

Harvey, Dr. B. C. (1) On the Chromatin Characters of Certain Parietal Cells. (2) On a Case of Polydactylism in the Foot. (3) A Case of Innervation of the M. rectus lateralis oculi by the N. oculi motorius, with absence of the N. abducens.

Shambaugh, Dr. C. E. The Development of the Stria Vascularis.

Dermatology.

President: Norman Walker, M.D., Edinburgh.

Vice-Presidents: Graham Chambers, M.B., Toronto; Harry B. Anderson, M.D., C.M., Toronto; Ernest Solly, M.B., Harrogate.

Honorary Secretaries: David King Smith, M.B., 311, Jarvis Street, Toronto; Donald Macgillivray, M.B., 12, Carlton Street, Toronto; John Campbell Rankin, M.B., 38, University Road, Belfast.

Laryngology and Otology.

President: J. Dundas Grant, M.D., London.

Vice-Presidents: George R. McDonagh, M.B., L.R.C.P., Toronto; Herbert Stanley Birkett, M.D., C.M., Montreal; John Macintyre, M.B., Glasgow; Hugh Edward Jones, M.R.C.S., Liverpool.

Honorary Secretaries: David James Gibb Wishart, B.A., M.D., C.M., L.R.C.P., 47, Grosvenor Street, Toronto; Geoffrey Boyd, B.A., M.B., 167, Bloor Street, Toronto; Adam Brown Kelly, M.D., 26, Blythswood Square, Glasgow.

A joint discussion has been arranged with the Section of Paediatrics on Congenital Stridor (Laryngeal and Tracheal), to be opened by Dr. Logan Turner (Edinburgh) and Dr. Henry Ashby (Manchester).

A paper on Skiagraphy as an aid in the Diagnosis and Treatment of Diseases of the Accessory Sinuses of the Nose will be read by Dr. C. G. Coakley (New York).

Medicine.

President: Sir Thomas Barlow, Bart., K.C.V.O., M.D., London.

Vice-Presidents: Professor Alexander McPhedran, M.B., Toronto; Professor James Stewart, M.D., C.M., Montreal; Alexander Napier, M.D., Glasgow; William Calwell, M.D., Belfast.

Honorary Secretaries: Robert Dawson Rudolph, M.D., M.R.C.P., 396, Bloor Street W., Toronto; John Taylor Fotheringham, B.A., M.B., M.D., C.M., 36, Carlton Street, Toronto; Robert Hutchison, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—On Blood Pressure in Relation to Disease. The subject will be treated under the following headings: (*a*) Physiological Introduction, by Dr. Percy M. Dawson (Baltimore). (*b*) Clinical Methods of Investigating Blood Pressure, by Dr. G. A. Gibson (Edinburgh). (*c*) The Clinical Significance and Therapeutical Indications of Variations in Blood Pressure, by Sir Wm. Broadbent. (*d*) The Relation of Blood Pressure to Arterial Sclerosis, by Professor Clifford Allbutt. The following will also take part: Dr. Mackenzie (Burnley), Sir James Barr, Dr. Rose Bradford, and others.

Wednesday, August 22nd.—A joint discussion with the Physiology Section on Over-nutrition and Under-nutrition, with special reference to Proteid Metabolism, to be opened by Professor Chittenden (Yale).

Thursday, August 23rd.—Papers on Heart Block, by Dr. Mackenzie (Burnley), Dr. G. A. Gibson, Dr. Erlanger, Professor Osler, and others.

Friday, August 24th.—Papers.

The following papers have been received:

Bradford, Dr. Rose (London). The Classification of the Various Forms of Bright's Disease.

Smith, Dr. F. J. (London). Some Observations on the Treatment of Typhoid Fever.

Dock, Dr. G. Paracentesis of the Pericardium: Indications and Methods.

Spiller, Dr. W. E. Syringomyelia, with a Cavity traced from the Sacral Region to the Internal Capsule.

Rudolf, Dr. R. D. (Toronto). The Effect of Posture upon the Position of the Heart.

McCallum, Dr. Hugh A. The Action of Diphtheritic Serum on Diseases other than Diphtheria.

Mackenzie, Dr. Ridley (Montreal). Four Cases of Gangrene of the Lung, with Recovery after Operation.

Barker, Dr. L. F. (Canada). Amido-acids and Metabolism.

Stengel, Dr. Alfred (Canada). Some Clinical Manifestations, Visceral and General, of Arterio-sclerosis.

Morrow, Dr. W. S. (Montreal). Some Cases of Arrhythmia Studied by the Venous Method.

Fotheringham, Dr. J. T. (Toronto). The Present Status of Military Medical Arrangements in Canada.

Meyers, Dr. C. (Ontario). The Treatment of Neurasthenia in General Hospitals.

Thistle, Dr. W. B. (Toronto). Typhoid Fever.

Blackader, Dr. A. D. (Montreal). A Case of Enlarged Spleen: Operation: Recovery.

Turner, Dr. Aldren (London). Diet in the Treatment of Epilepsy.

Obstetrics and Gynaecology.

President: A. H. Freeland Barbour, M.D., Edinburgh.

Vice-Presidents: Professor James Algernon Temple, M.D., C.M., Toronto; Professor Adam H. Wright, B.A., M.B., Toronto; Professor William Gardner, M.D., Montreal; T. Arthur Helme, M.D., Manchester.

Honorary Secretaries: Frederick Fenton, M.D., C.M., 75, Bloor Street E., Toronto; Kennedy Crawford McIlwraith, M.B., 54, Avenue Road, Toronto; Cuthbert Lockyer, M.D., 117A, Harley Street, London, W.

It has been arranged that on August 21st, 22nd, and 23rd the first part of the meeting be devoted to a discussion on the following subjects:

Tuesday, August 21st.—Hyperemesis Gravidarum.

Wednesday, August 22nd.—The Changes in Uterine Fibroids after the Menopause, with Special Reference to Operation.

Thursday, August 23rd.—The Appendix Vermiformis in Relation to Pelvic Inflammation.

Friday, August 24th.—Papers, etc.

Dr. J. C. Cameron, of Montreal, will introduce the discussion on August 21st; Dr. Charles A. L. Reid will introduce that on August 22nd; and Dr. T. Arthur Helme will introduce that on August 23rd.

Dr. J. Murdoch Cameron (Glasgow) will read papers on (*a*) Ectopic Pregnancy, (*b*) Antistreptococcus Serum in Puerperal Septicaemia.

Ophthalmology.

President: Robert Marcus Gunn, F.R.C.S., London.

Vice-Presidents: George Herbert Burnham, M.D., F.R.C.S.E., Toronto; John W. Stirling, M.D., Montreal; Joseph Nelson, M.D., Belfast; Arnold Lawson, F.R.C.S., London.

Honorary Secretaries: JAMES METCALF MACCALLUM' B.A., M.D., C.M., Toronto; DUNCAN NEIL MCLENNAN, M.D., C.M., 126, Bloor Street W., Toronto; FRANK P. S. CRESSWELL, F.R.C.S., B.Sc., 24, Windsor Place, Cardiff.

The subjects which have been chosen for discussion are:

Tuesday, August 21st.—Rare Forms of Choroiditis. To be opened by Mr. J. B. Lawford (London). The following will also take part: Dr. Hill Griffith (Manchester), Dr. H. Knapp (New York), and Dr. C. Bull (New York).

Wednesday, August 22nd.—Sympathetic Ophthalmia. To be opened by Dr. G. H. Burnham (Toronto). The following will also take part: Mr. Arnold Lawson (London) and Dr. J. W. Stirling (Montreal).

Thursday, August 23rd.—Affections of the Lachrymal Passages. To be opened by Dr. Desjardines (Montreal). The following will take part in the discussion: Dr. Risley (Philadelphia) and Dr. Theobald (Baltimore).

Friday, August 24th.—Visual Tests for Public Services. (*a*) Marine and Railroad Services. To be opened by Dr. T. H. Bickerton (Liverpool). Dr. Williams, jun. (Boston), Dr. Thompson, sen. (Philadelphia), and Dr. Allport (Chicago) will also take part. (*b*) Military Services. To be opened by Mr. Arnold Lawson (London).

The following papers have been accepted:

BRAILEY, Mr. (London). On Treatment of Lachrymal Stricture.

FERGUS, Mr. Freeland (Glasgow). (1) On Sympathetic Degeneration. (2) On the Work which can be performed by a One-eyed Man. (3) Plastographic Tests for Binocular Vision.

PAEDIATRICS.

President: GEORGE ALEXANDER SUTHERLAND, M.D., London.

Vice-Presidents: HENRY T. MACHELL, M.D., L.R.C.P., Toronto; ALLAN M. BAINES, M.B., Toronto; OTTO JACKSON KAUFFMANN, M.D., Birmingham; H. BETHAM ROBINSON, M.S., London.

Honorary Secretaries: EDWARD STANLEY RYERSON, M.D., C.M., 261, College Street, Toronto; JOSEPH S. A. GRAHAM, M.B., 102, College Street, Toronto; RALPH VINCENT, M.D., 1, Harley Street, London, W.

The Section will meet on Tuesday, Wednesday, Thursday, and Friday (August 21st, 22nd, 23rd, and 24th), at 9.30 a.m., adjourning at 12.30 p.m. each day.

The following discussions have been arranged:

1. On Congenital Pyloric Stenosis. The medical aspects of the subject will be introduced by Dr. Edmund Cautley (London), and the surgical aspects will be introduced by Mr. Harold J. Stiles (Edinburgh).

2. On Pneumococcal Infection. The medical aspects of the subject will be introduced by Dr. Henry Ashby (Manchester) and Dr. Stuart MacDonald (Edinburgh).

3. On Entero-colitis, to be introduced by Dr. T. L. Morse (Boston).

4. On Rheumatism in Children, to be introduced by Dr. A. D. Blackader (Montreal).

5. A joint discussion with the Section of Laryngology and Otology on Congenital Stridor (Laryngeal and Tracheal) to be opened by Dr. Logan Turner (Edinburgh) and Dr. Henry Ashby (Manchester).

It is hoped that a Clinical Demonstration of interesting cases in one of the Toronto hospitals may be arranged.

The following papers have been received:

SHAW, Dr. (Montreal). Some Phases of Rickets.

SHAW, Dr. (Albany, N.Y.). The Chemistry of Milk.

STARR, Dr. C. L. (Toronto). Orthopaedics.

EWART, Dr. William (London). The Abdominal Atony of Rickets.

VINCENT, Dr. Ralph (London). The Milk Laboratory and its Relation to Medicine.

PATHOLOGY AND BACTERIOLOGY.

President: Professor J. G. ADAMI, M.D., F.R.S., Montreal.

Vice-Presidents: Professor JOHN J. MACKENZIE, B.A., M.B., Toronto; Professor WALTER THOMAS CONNELL, M.D., C.M., Kingston; INGERSOLL OLMSTED, M.D., Hamilton; Professor ROBERT FRASER CALDER LEITH, M.B., Birmingham.

Honorary Secretaries: GIDEON SILVERTHORN, M.B., M.D., C.M., 266, College Street, Toronto; HAROLD C. PARSONS, B.A., M.D., C.M., 72, Bloor Street W., Toronto; FRANK GEORGE BUSHNELL, M.D., Sussex County Hospital, Brighton.

The following preliminary arrangements have been made:

Tuesday.—On Nuclear Pathology and Physiology, to be opened by Professor Adami and Dr. McCallum, and followed by Dr. Gustav Mann (Oxford), Professor E. Wace Carlier (Birmingham), Professor A. S. F. Grünbaum (Leeds), and Dr. H. E. Roaf (Liverpool).

Papers by:

PEARCE, Dr. Richard M., M.D., and JACKSON, Holmes C., Ph.D.M. (Bender Hygienic Laboratory, Albany, N.Y.). Concerning the Production of Somatogenic Cytotoxins by the Injection Nucleo-proteids.

FORD, Dr. W. W. (Johns Hopkins University). An Antitoxin for Poisonous Mushrooms.

MAINWARING, Professor W. H. (Indiana University). The Application of Physical Chemistry to Serum Pathology.

SMITH, Dr. F. J., and Dr. MILLER (London Hospital). Gastric Erosions.

Wednesday.—Etiology and Life-history of Malignant New Growths. To be opened by Professor H. R. Gaylord (Buffalo); Professor Clowes (Buffalo) and Dr. Beebie (New York). Professor G. Sims Woodhead (Cambridge), Professor A. S. F. Grünbaum (Leeds), Dr. Robert Muir (Glasgow) and others are expected to take part in the discussion.

Papers by:

LOEB, Dr. Leo (Pennsylvania University). Some Results of the Experimental Investigation of Tumours.

BASHFORD, Dr. E. F. (London). Investigations under the Imperial Cancer Research Fund, and their Results, with lantern demonstrations.

WARTHIN, Professor A. S. (Ann Arbor). The Leucoblastomata.

Thursday.—The Forms of Arterio-sclerosis, their Classification and Experimental Production. To be opened by Professor W. H. Welch (Johns Hopkins University, Baltimore), Dr. Klotz (Montreal), and Professor J. J. MacKenzie (Toronto); and followed by Professor L. Aschoff (Freiburg), Professor Leith (Birmingham), Professor Clifford Allbutt (Cambridge), Professor W. Osler (Oxford), Professor Adami (Montreal), Dr. Pearce (Albany), Dr. Beattie (Edinburgh), and Dr. Robert Muir (Glasgow).

ADAMI, Professor (Montreal), will read a paper on Fluid Crystals and their Relationship to Arterio-sclerosis and other Pathological Conditions.

Friday.—Papers upon Pathogenic Protozoa: by Dr. F. W. Mott (London), Acute and Chronic Changes in the Nervous System produced by Trypanosoma Infections; Professor F. E. Novy (Ann Arbor), On the Nature of Spirochaetes and the Prevention and Cure of Relapsing Fever, with lantern demonstrations; Dr. J. Ballah (Montreal), On the Life-History and Cultivations of Certain Pathogenic Protozoa; Dr. J. W. W. Stephens (the Johnston Laboratory School of Tropical Medicine, Liverpool), On Spirochaetes and Trypanosomes; Dr. Armand Ruffer (Ramleh, Egypt), The Diagnosis of Cholera Asiatica; Professor R. T. Hewlett (with Dr. De Korté), A Beri-beri-like Disease of the Monkey, and the Pathological Histology of Beriberi; Professor W. St. C. Symmers (Belfast), Demonstration of Bilharzia Preparations; Dr. De Korté, The Virus of Small-pox and Vaccinia (communicated by Professor Hewlett).

The following papers on other subjects have been accepted:

MILLER, Dr. (Birmingham) (communicated by Professor Leith). On the Elastic Tissue of Arteries.

PEARCE, Dr. (Albany). Immunity against Nucleo-proteids.

KAUFMANN, Dr. O. J. (Birmingham). The Urinary Excretion of Potassium Iodide in Various Morbid Conditions.

Arrangements will be made for the exhibition in the Pathological Museum of specimens illustrating the work of the section. Members wishing to exhibit material or photographs should communicate with Dr. N. E. Abbott, McGill Medical College, Montreal.

Those who propose taking part in the discussions are requested to send in their papers, accompanied by a short abstract, to the Honorary Secretaries, in order that the abstracts may be printed and circulated before the meeting. Papers from members in the United Kingdom and Europe should be sent to Dr. Bushnell, and those from members in the Dominion of Canada or the United States of America, etc., to Dr. Silverthorn or Dr. Parsons.

Physiology.

President: Professor Wm. Dobinson Halliburton, M.D., F.R.S., London.

Vice-Presidents: Professor Archibald B. Macallum, M.A., M.B., F.R.S., Toronto; Professor Wesley Mills, M.A., M.D., Montreal; Professor Charles Scott Sherrington, M.D., F.R.S., Liverpool.

Honorary Secretaries: Herbert E. Roaf, M.D., The Bio-Chemical Department, The University, Liverpool; Gustav Mann, M.D., 25, Beechcroft Road, Oxford.

A large number of prominent American physiologists have accepted invitations to attend, and British physiologists will thus have the opportunity of making the personal acquaintance of their American colleagues. Several French physiologists have also signified their intention to be present, and it is hoped that other foreigners may also accept the invitations sent to them.

A joint discussion on the Rôle of the Nucleus in Nutrition with the Section of Pathology has been arranged, and another joint discussion with the Section of Medicine will also take place, the subject being Over-nutrition and Under-nutrition, with special relation to Proteid Metabolism in Health and Disease. This will be opened by Professor Chittenden.

The following papers will be read and discussed:

Folin, Dr. Otto (Waverley, Mass.). The Metabolism of Kreatin and Kreatinin.

Kemp, Professor G. T. (University of Illinois). The Blood Plates in Physiology and in Pathology and their Value as a Factor in Diagnosis and in Prognosis.

Mills, Professor Wesley (Montreal). The Preservation of Frogs for Physiological Purposes.

Meltzer, Dr. S. J. (New York). Stimulation of the Central End of the Vagus causes in Dogs a Marked Simultaneous Contraction of the Entire Oesophagus.

Lee, Professor S. F. (New York). The Causes of Fatigue in Certain Pathological States.

Morrow, Dr. W. S. (Montreal). The Various Forms of the Negative or Physiological Venous Pulse.

Mendel, Dr. Lafayette B. (New Haven, Conn.). Chemical Studies on Growth.

Howell, Professor W. H. (Johns Hopkins University, Baltimore). The Absorption of Proteids from the Intestines.

Beebe, Dr. S. P. (New York). Nucleo-Proteid Immunity.

Psychology.

President: Wm. Julius Mickle, M.D., London.

Vice-Presidents: Nelson Henry Beemer, M.D., Toronto; Charles Kirk Clarke, M.D., Toronto; Reginald Langdon-Down, M.B., London.

Honorary Secretaries: Alfred Thomas Hobbs, M.D., Guelph, Ontario; Goldwin Howland, B.A., M.B., 540, Spadina Avenue, Toronto; John Turner, M.B., Essex County Asylum, Brentwood.

The following subjects have been selected for special discussion in the Section of Psychology:

1. General Paralysis, to be introduced by Dr. W. J. Mickle.
2. Epilepsy, to be introduced by Dr. W. Aldren Turner.
3. Dementia Praecox, to be opened by Dr. C. K. Clarke (Toronto) and Dr. A. Meyer (New York).
4. Mind and Medicine, to be introduced by Dr. A. T. Schofield.

The following papers and demonstrations have been arranged for:

Clam, Dr. A. (Toronto). Reflexes among the Insane.

Clam, Dr. C. K. (Toronto). Goître among the Insane.

Crothers, Dr. (Hartford). Insanity of Inebriety.

Dubois, Professor Paul (Berne). Rational Psycho-therapeutics.

Farran, Dr. (Baltimore). Types of Devolutional Psychoses.

Rentoul, Dr. R. R. (Liverpool). Sterilization of certain Mental Degenerates.

Shirris, Professor (McGill University, Montreal). Diagnosis and Treatment of Peripheral Nerve Lesions.

Shuttleworth, Dr. G. E. (London). Treatment of the Mentally Defective in English-speaking Countries.

Spratling and Chase, Drs. (New York). Epilepsy in Moving Pictures.

Turner, Dr. J. (Essex). Relation of Epilepsy to Changes in the Blood and Central Nervous Systems.

State Medicine.

President: Frederick Montizambert, I.S.O., F.R.C.S.E., D.C.L., M.D., Ottawa.

Vice-Presidents: E. P. Lachapelle, M.D., Laval University, Montreal; Charles Sheard, M.D., Toronto; Peter Henderson Bryce, B.A., M.B., Ottawa; Joseph Groves, M.B., Isle of Wight.

Honorary Secretaries: Joseph D. Page, M.D., Quebec; F. G. E. Pearson, M.D., Brantford, Ontario; Edward Sergeant, L.R.C.P., County Offices, Preston; Arthur A. Mussen, M.D., Municipal Offices, Liverpool.

The following special subjects have been suggested for discussion:

1. Protection and Control of Milk Supply, in which Professor Delépine (Manchester), Dr. Cooper Pattin (M.O.H. Norwich), and Dr. Chalmers (M.O.H. Glasgow) will take part.
2. Prevention of Tuberculosis. Professor Delépine (Manchester) will take part in this discussion.
3. Training and Supervision of Midwives. Dr. Cooper Pattin (M.O.H. Norwich) will contribute a paper to this discussion.
4. Notification of Phthisis.
5. Provision and Administration of Isolation Hospitals.
6. Isolation Hospitals and "Return" Cases.
7. Medical Inspection of Children attending Elementary Schools. Dr. Chalmers (M.O.H. Glasgow) will contribute a paper to this discussion.
8. Quarantine and Inspection of Shipping.
9. Medical Examination of Immigrants.
10. Supply of "Water Gas" and Dangers of Carbon Monoxide Poisoning.

Dr. A. W. Gilchrist (Nice) will read a paper on Some General Analogies between Tuberculosis and Influenza.

Surgery.

President: Sir Hector Clare Cameron, M.D., Professor of Clinical Surgery, Glasgow.

Vice-Presidents: Fred. Le M. Grasett, M.B., C.M., F.R.C.S.E., Toronto; Francis J. Shepherd, M.D., C.M., LL.D., F.R.C.S.E., Montreal; Alfred B. Atherton, B.A., M.D., LL.D., Frederickton, N.B.; Tecumseth Kingsley Holmes, M.D., Chatham, Ontario.

Honorary Secretaries: Harry A. Beatty, M.B., 207, Simcoe Street, Toronto; Frederick William Marlow, M.D., C.M., F.R.C.S., 699, Spadina Avenue, Toronto; Sinclair White, F.R.C.S., Ranmoor, Sheffield.

Arrangements have been made for special discussions on the following subjects:

The Surgical Treatment of Ascites Secondary to Chronic Hepatitis.
Prostatectomy.
Duodenal Ulcer.
Peritonitis.

Therapeutics.

President: Donald MacAlister, M.D., Cambridge.

Vice-Presidents: John Lorenzo Davison, B.A., M.D., C.M., Toronto; Alexander D. Blackader, B.A., M.D., Montreal; Sir Alan Reeve Manby, M.V.O., M.D., East Rudham; Professor J. Rose Bradford, M.D., F.R.S., London.

Hon. Secretaries: Velyien E. Henderson, M.A., M.B., University of Toronto; Charles Potter Lusk, M.D., C.M., 99, Bloor Street W., Toronto; E. R. Morton, M.D., 22, Queen Anne Street, London, W.

The following subjects have been selected for discussion:

Tuesday, August 21st.—The Kidney, its Pharmacology and Therapeutics.

Wednesday, August 22nd.—Serumtherapy and Vaccine-therapy.

Thursday, August 23rd.—Joint Session with the Section of Medicine on the subject of Heart-block.

Friday, August 24th.—The Place of Materia Medica and Therapeutics in the Medical Curriculum. The Therapeutic Value of Alcohol.

The following gentlemen intend to take part in the discussions or to contribute papers: Dr. A. D. Blackader (Montreal), Dr. J. B. Bradbury (Cambridge), Dr. J. Rose Bradford (London), Dr. T. G. Brodie (London), Dr. W. E. Dixon (Cambridge), Dr. J. T. Halsey (New Orleans), Dr. H. A. Hare (Philadelphia), Dr. A. O. J. Kelly (Philadelphia), Dr. T. McCrae (Baltimore), Dr. J. Mackenzie. (Burnley), Dr. C. R. Marshall (St. Andrews), Dr. A. J. Meltzer (New York), Dr. J. H. Musser (Philadelphia), Dr. G. W. Ross (Toronto), Dr. G. S. Woodhead (Cambridge), Dr. R. B. Wild (Manchester).

The Secretaries will be glad to receive specimens, drawings, tracings, or preparations for exhibition during the session.

HONORARY LOCAL SECRETARIES.

FREDERIC NEWTON GISBORNE STARR, M.B., Medical Building, Toronto.
Professor JOHN JOSEPH MACKENZIE, B.A., M.B., Medical Building, Toronto.
DAVID JAMES GIBB WISHART, B.A., M.D., L.R.C.P., Medical Building, Toronto.

COMMITTEE PATHOLOGICAL MUSEUM.

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PROGRAMME OF PROCEEDINGS.

TUESDAY, AUGUST 21ST, 1906.

9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address of Welcome; Introduction of Guests, Delegates, etc.; and President's Address.
4.30 p.m.—In the University Quadrangle a Reception and Garden Party by the President-elect and Mrs. Reeve.
8.30 p.m.—Address in Obstetrics, Dr. W. S. A. Griffith.
9.30 p.m.—Reception by the Lieutenant-Governor.

WEDNESDAY, AUGUST 22ND.

9.30—12.30 a.m.—Meetings of Sections.
2.30 p.m.—Address in Medicine, Sir James Barr, M.D.
4.30 p.m.—Garden Parties.
8.30 p.m.—Address in Surgery, Sir Victor Horsley, F.R.S.
9.30 p.m.—Reception.

THURSDAY, AUGUST 23RD.

9.30—12.30 a.m.—Sectional Meetings.
4.30 p.m.—Garden Parties.
7.30 p.m.—Annual Dinner.

FRIDAY, AUGUST 24TH.

9.30—12.30 a.m.—Sectional Meetings.
2.30 p.m.—General Meetings.
4.30 p.m.—Garden Parties. Excursions.
8.30 p.m.—Soirée.

SATURDAY, AUGUST 25TH.

Excursions to the Niagara Power Company's plant, through the courtesy of Sir Henry M. Pellatt.
Excursion to Muskoka.
Excursion to Lambton, through the courtesy of the President, Mr. Austin.

THE SCIENCE COMMITTEE
OF THE
British Medical Association.

REPORTS ON PROGRESS OF RESEARCHES.

THE Science Committee has received the following reports from the Research Scholars and the recipients of grants upon the investigations carried out by them:

REPORTS FROM THE RESEARCH SCHOLARS.

HERBERT E. ROAF, M.D.(Toronto), M.R.C.S., L.R.C.P.,

Relation of Inorganic Constituents of Cells to their Growth and Activities.

During the year he has conducted several different researches, one of which has already been published and several others are almost ready for publication.

The one which has been published is The Action of Acids and Alkalies, and of Acid, Alkaline, and Neutral Salts upon the Tadpole of *Rana temporaria*, by Herbert E. Roaf and Edward Whitley,[2] from which they conclude that:

1. Hydrogen and hydroxyl ions are very toxic, and the degree of toxicity is relatively of the same magnitude for these two ions. With acid and alkaline salts the degree of toxicity is relatively proportional to the concentration in hydrogen or hydroxyl ions.

2. Neutral salts, when present along with traces of other salts, do not kill until the osmotic pressure rises above that of the body fluids of the organism. When the isotonic point is reached there is a short range at which the various salts become toxic, but the length of this range varies with the ions of the salt used.

3. The volume of the organism does not remain constant until the surrounding medium has become isotonic with the internal medium, but volume diminishes constantly with increase of concentration of the neutral salt.

4. Certain ions have a specific toxic effect, and when present in neutral salts cause death long before the isotonic point is reached. Such salts are those of the heavy metals, barium and ammonium.

5. At much lower concentrations certain ions possess a favouring action upon growth.

The stomach contents of a number of cases of cancer have been examined, and these will shortly be published to amplify the previous paper on the same subject,[3] of which the main conclusions are as follows:

1. In addition to the well-known fact that hydrochloric acid is diminished or absent in cases of cancer of the stomach, it is shown that the same decrease of free acid accompanies cancer no matter where the growth is situated, and is therefore not due to local causes.

2. The diminution of acid might be due to (*a*) loss of oxyntic cells; (*b*) toxins causing arrest of function of oxyntic cells; (*c*) diminished acidity or increased alkalinity of blood plasma in these cases.

The effects of various inorganic salts on growth and cell division has been studied, using hyacinths, onions, and other organisms. The results point to similar conclusions to those given in a previous paper.[4] The conclusions reached are as follows:

1. The addition of small amounts of alkalies or alkaline salts to the medium in which sea-urchin eggs are growing causes first an increase of growth, but as the amount is increased there is irregularity in size and shape of cells. Nuclear division becomes in advance of cytoplasmic division and hence the cells become multinucleated. As the alkali is further increased all cell division is stopped.

[1] See also joint report with Professor Sherrington, p. 9.
[2] *Biochemical Journal*, vol. i, pp. 81-110.
[3] On the Absence or Marked Diminution of Free Hydrochloric Acid in the Gastric Contents in Malignant Diseases of Organs other than the Stomach, by Benjamin Moore, W. Alexander, R. F. Kelly, and H. E. Roaf, *Proceedings Royal Society*, B., vol. lxxvi, pp. 138-139.
[4] On the Effects of Alkalies and Acids and of Alkaline and Acid Salts upon Growth and Cell Division in the Fertilized Eggs of *Echinus Esculentus*; a Study in Relationship to the Causation of Malignant Disease. By Benjamin Moore, Herbert E. Roaf, and Edward Whitley—*Proceedings Royal Society*, B., vol. lxxvii, pp. 102-136.

2. Accompanying the increase of nuclear division caused by the dilute alkali there are seen many of the atypical mitoses described in malignant disease:—(*a*) Multiple nuclei dividing in the same cell; (*b*) multipolar mitosis; (*c*) asymmetrical mitosis; (*d*) reduction of the chromosomes in length and number; (*e*) vesicular chromosomes.

3. No such increased growth is caused by the addition of minute traces of acid to medium in which the eggs are growing.

4. The extreme limits of reaction at which life and cell division are possible lie very close together, indicating that the cell is very sensitive to even slight changes in hydrogen-ion and hydroxyl-ion concentration.

In addition there are several researches in progress bearing on the relation of cells to the inorganic constituents about them, and contained in their own protoplasm, but the results have not advanced far enough to enable one to form any definite conclusions. The scope of these additional researches is roughly covered by the following titles:

1. An investigation into some aspects of experimental diabetes.
2. The physical conditions under which the inorganic salts are contained in serum and blood corpuscles.
3. On lockjaw.
4. An investigation into the digestive glands of certain invertebrates.

Diabetic Lipaemia.

A case of lipaemia terminating diabetes mellitus has been investigated, and is at present being got ready for publication. The main conclusions are:

1. In certain cases of lipaemia a large amount of ethereal extractives may be present (over 10 per cent. in the present case) in the blood.
2. That in certain cases this ethereal extract does not consist entirely of glycerine combined with fatty acids, but there may be cholesterin or a cholesterin-like body combined with the fatty acids.

Osmotic Pressure.

A series of experiments have been performed studying the osmotic pressure of various colloidal solutions.

J. Anderson Craw.

Physical Chemistry of the Toxin-Antitoxin Reaction and of Agglutination.

From July 1st, 1905, up to the present, he has been engaged in research work in immunity, embraced in the following papers, in part already published and in part now in preparation for publication in the British Medical Journal.

1. On the Filtration of Crystalloids and Colloids through Gelatine: with special reference to the behaviour of haemolysins. By J. A. Craw, *Roy. Soc. Proc.*, B., vol. lxxvii, p. 311. Communicated to the Royal Society on December 1st, 1905, and read on February 1st, 1906.
2. Experiments on a New Porcelain Filter. By Dr. W. Bulloch, London Hospital Medical College, and J. A. Craw. Communicated to the Medical Research Club on May 16th, 1906.
3. On the Standardization of Diphtheria Toxin and Antitoxin. By J. A. Craw and Dr. G. Dean, Lister Institute of Preventive Medicine.
4. On Normal Variations in the Weight of Guinea-pigs: with special reference to the Estimation of Diphtheria Toxin. By J. A. Craw.
5. On the Preparation of Colloidal Solutions. By J. A. Craw.
6. On Maximal and Minimal Agglutination and Haemolysis by Inorganic Agents and Bacterial Haemotoxins. By J. A. Craw.
7. On the Preparation of Haemin. By J. A. Craw.

Further, he gave a course of ten lectures to the University of London at the London Hospital Medical College on the physical chemistry of colloidal solutions, with special reference to immunity, pointing out the lines along which research was advancing, and its bearing on current views regarding the toxin-antitoxin reaction and agglutination. He is at present engaged on a work to be published in book form, and based on these lectures, entitled the physical chemistry of immunity.

The experimental work now in hand promises to throw light on the formation of toxoids from toxins, and an endeavour is being made to obtain suitable units for the further examination of the physical chemistry of the toxins and agglutinins.

The research on gelatine filtration was undertaken to elucidate the mechanism of the Martin filters which had been used in a previous investigation—on the physical chemistry of the toxin-antitoxin reaction[1]—and to determine the value of the filter as an instrument for the examination of physiological fluids, especially those met with in problems in immunity. The redistribution of the saline contents of the haemotoxic fluids investigated in the earlier paper, during filtration was determined and evidence educed which showed definitely that the haemotoxic effects obtained from the filtrates and residues were not due to changes in the concentration of the salts contained but were entirely caused by free bacterial haemotoxin. It follows, then, that Ehrlich's views on the toxin-antitoxin reaction, as well as on the constitution of toxins in general, require considerable modification, and it is clear that the counter-hypotheses of Arrhenius and Madson fail to meet the experimental facts and the theoretical conditions applicable to the subject. The chief conclusions arrived at from the investigation of gelatine filtration are as follows:

Wet gelatine filters are to be preferred to those which have been partially dried, as the former have more uniform rates of filtration, and dilution of the filtrate from a physiological fluid by the water contained in the gelatine can be largely eliminated. During filtration at constant pressure the gelatine absorbs water and its porosity gradually decreases; on decompression this water is expressed and the original porosity is rapidly regained. Gelatine of a definite concentration apparently has a specific permeability for different crystalloids and colloids: the value is high, but not complete, for the crystalloids, sodium chloride, potassium iodide, and butyric acid; and it is low, but not zero, for the colloids, ferric hydrate, serum, and soluble starch. As filtration proceeds the crystalloids pass through in increasing concentration, whereas the colloids rapidly decrease to zero. The simultaneous filtration of two substances may influence their specific permeabilities; thus, butyric acid alters the permeability to sodium chloride, and iodine that of potassium iodide.

Variations in the gelatine influence the permeability, for example, formalized gelatine is less permeable to sodium chloride than ordinary gelatine, and 15 per cent. gelatine is less permeable to megatherium lysin than 7.5 per cent. Variation in the pressure causes remarkable changes in permeability. A sudden diminution of pressure—for example, from 100 atmospheres to 10 atmospheres—gives highly concentrated filtrates of both crystalloids and colloids, whereas a gradual diminution in pressure has practically no effect on the concentration of the filtrate. Substances which stain gelatine, such as neutral red and iodine, give filtrates with lower concentrations on diminishing the pressure either suddenly or gradually. The rate of filtration is accelerated by amylic alcohol and butyric acid, which accelerate the rate of sedimentation of silts and precipitates in a similar way. Part of these phenomena may be explicable on the mechanical view of a blocking of the gelatine pores, but chemical relations between the gelatine and the substances filtered must be taken into consideration, and probably the most satisfactory view is that the action on the solutions tested consists in the formation of "absorption" or "adsorption" compounds of variable constitution.

Considering the large number of Pasteur-Chamberland candles which were used in the above investigations it was with considerable interest that he investigated in conjunction with Dr. W. Bulloch a much cheaper candle designed by Messrs. Doulton, of Lambeth, which seems admirably to meet the requirements of a good basis for gelatine filters. Further, much of the above work on gelatine filtration must apply to the filtration of water through sand filters and on a small scale through porcelain filters. They found the Doulton porcelain filter to retain micro-organisms for a longer time than the Pasteur-Chamberland candles when tested in an apparatus designed to give comparative results. The filter mass is exceptionally homogeneous and enabled them to gain a much greater volume of germ-free filtrate in a given time than did the Pasteur-Chamberland. He proposes to use this thoroughly-tested material in his future investigations of the filtration phenomena of toxins and agglutinins.

[1] *Roy. Soc. Proc.*, B.; vol. lxxvi, p. 179, 1905.

The work on the estimation and standardization of diphtheria toxin and antitoxin is a study of data collected during the past six years at the Lister Institute and its bearing on the work of Ehrlich, Arrhenius, and Madsen.

He has succeeded in greatly increasing the yield of pure haemin from blood by modifying Schilfejew's method; also in preparing new colloidal solutions by the use of glycerin and gelatine; and in tracing a theoretical and experimental connexion between agglutination of erythrocytes and haemolysis. Further particulars of these researches will be forwarded if desired.

MAJOR GREENWOOD, Jun., M.R.C.S., L.R.C.P.

Influence of Increased Barometric Pressure.

The main object of the researches undertaken during this period has been the investigation of the effects produced in man by the employment of increased atmospheric pressure.

In the summer of 1905, he carried out, in conjunction with Mr. Leonard Hill, F.R.S., a series of experiments on animals, the result of which was to confirm them in the belief that similar researches might reasonably be performed on themselves. They were unable to detect any constant alteration in the vital functions when using air pressures less in degree than those at which the increased oxygen tension exerts its well-known toxic effects (Bert, v. Schroetter, Hill and Macleod, etc.). They could not satisfy themselves, from these experiments, that the respiratory exchange undergoes any marked variation, but further research is necessary as to this point.

They next commenced a series of experiments on themselves. The results obtained up to the end of January, 1906, were described at length in a memoir published in the *Proceedings of the Royal Society*, B., vol. lxxvii, pp. 442, etc., and have been epitomized in the BRITISH MEDICAL JOURNAL for April 21st of this year.

By this research they have proved that the working limit of pressure may be extended to + 6 atmospheres, without danger or inconvenience, provided certain definite precautions be taken, namely, a slow and regular rate of decompression; (2) massage and muscular movement during this process. They also proved that variations in the alveolar percentage of carbon dioxide are explicable on a physical basis.

The next step in the investigation has been to inquire more closely into the phenomena of decompression, and to attempt fixing the decompression period by a knowledge of the amount of gas dissolved in the body fluids.

If the pathogeny of caisson disease advanced by Paul Bert be accepted—and in the present state of knowledge such an acceptance is imperative—then the danger of high pressures must depend, other things being equal, on the rapidity and completeness with which the tissue fluids are saturated with nitrogen.

It is, therefore, important to ascertain what length of exposure to a given pressure results in the saturation of the blood and other tissue fluids. In animals it is possible to analyse the blood gases at different periods, but this process cannot conveniently be applied to man. Supposing, however, one drinks a large quantity of water before entering the pressure chamber and during the course of the experiment, the profuse secretion of watery urine induced will yield quantities of fluid whose amount of dissolved gas furnishes an approximate measure of the saturation of the blood plasma.

A considerable number of experiments have been performed, and they hope to publish a memoir dealing with this question at an early date. They are satisfied that the tissue fluids are saturated with nitrogen after an absolutely short exposure to increased pressure. That this increased quantity of dissolved gas is yielded up slowly is proved by the fact that, even with slow decompression, the urine still contains an increased quantity of dissolved nitrogen on leaving the pressure chamber. The exact time relations of this process are of great importance, and they hope to furnish details in their next paper. They expect to be able to control the results obtained in their personal experiments by observations made on caisson workers in a tunnel now being constructed under the Thames.

Another line of research upon which Mr. Greenwood has been engaged in connexion with these problems is the question of caisson and diving-dress ventilation.

If the volume of a caisson be V c.cm. and $\frac{1}{q}$ V be ventilated in time t, then, if the pressure be doubled and the same ventilation-rate maintained, only $\frac{1}{2q}$ V is passed out; or the ventilation is halved. Thus one would expect the accumulation of carbon dioxide to be increased very rapidly.

For reasons which will be considered in detail when the experimental work has been finished, it seems probable that this is not so, but that if p c.cm. of carbon dioxide are added to the chamber in time t, then the amount present after nt intervals of time will be given by the formula:

$$pq\left(1-\frac{1}{q}\right)\left\{1-\left(1-\frac{1}{q}\right)n\right\}$$

From this formula, knowing the actual volume of air space, we can easily calculate the percentage of CO_2.

He has experimented on a cat, and finds that this formula gives, if anything, rather too high values. Thus, in an experiment at +2 atmospheres, the *observed* percentage of CO_2 was 0.39, and the *calculated* value 0.41. In experiments at +3 atmospheres, calculated values were 0.54, 0.65, 0.72, 0.72, after 30, 45, 56, and 65 minutes respectively, as against 0.54, 0.65, 0.63, and 0.58, which were the observed percentages. Other experiments gave similar results. Further work is necessary before one can draw conclusions, but it seems as if the above formula gives an upper limiting value, and that a rate of ventilation based on it would be at least sufficient. He hopes to be in a position to report more fully on this matter later.

Mr. Leonard Hill and Mr. Greenwood have also studied the respiratory exchange in man, under increased barometric pressure, using the method of Zuntz and Loewy; their results, however, are not yet sufficiently exhaustive to permit of any definite statement; they intend to carry out further researches as soon as the above-mentioned investigations are completed.

H. DE R. MORGAN, M.A., M.R.C.S., L.R.C.P., D.P.H.,
ERNEST HART MEMORIAL SCHOLAR.

Bacteriology of the Summer Diarrhoea of Infants.

Mr. Morgan has carried out a research upon the bacteriology of the summer diarrhoea of infants. The object of this research, which was undertaken last summer, was to differentiate bacteriologically between the intestinal contents of infants suffering from summer diarrhoea and of those of normal infants, so that by that means a clue to the possible cause of the disease might be found. To this end the diarrhoeic stools and the scrapings from the mucous surfaces of the intestines of children dying of this disease were plated on bile-salt-neutral-red-lactose agar plates (MacConkey), and all the colourless colonies—that is, the non-lactose fermenting bacteria—picked off. Such of these as were subsequently found not to liquefy gelatine were then grown on broths containing glucose, mannite, dulcite, lactose, and cane sugar, also on litmus milk, and were tested for indol on peptone beef-broth.

The stools or intestinal scrapings, or both, were thus examined from 58 cases of infantile summer diarrhoea. The stools of 20 healthy infants were also examined in the same way.

Of the 58 cases, 28 were found to yield an unknown motile bacillus (No. 1), which gave acid and gas on glucose only of the above-mentioned sugars, produced an alkaline reaction on litmus milk, and a large amount of indol on peptone beef broth. No dysentery bacilli were found exactly corresponding to those described by Flexner and other workers at the Rockefeller Institute. Two bacilli of the dysentery (Flexner) type were isolated, one (No. 3) from 5, and the other (No. 4) from 2 cases. The first of these differed from the dysentery (Flexner) bacillus in that it produced acid and gas when grown on sorbite broth; the second (No. 4) in that it failed to produce indol on peptone beef broth. The remaining bacteria isolated seemed unimportant.

The blood of each patient was next tested for agglutination reaction, both with the bacteria isolated from the same case and against the known bacilli of typhoid, dysentery (Flexner), dysentery (Shiga), Gaertner, paratyphoid A and paratyphoid B. In only 3 cases out of over 400 bacilli tested were any reactions obtained, the most

important of which was a reaction of the blood of a patient from whom No. 3 bacillus was isolated, which reacted both with this bacillus and with the *Bacillus typhosus*.

From the twenty stools of healthy infants no bacilli were found corresponding to the above.

The pathogenicity of bacillus No. 1 was next investigated. Half an agar tube of the culture mixed with the food of a young rat was found to produce violent diarrhoea and death within twenty-four hours. The same effect was produced on young rabbits by an agar tube of the culture. The bacilli were in each case isolated from the spleen in pure culture, and, in a few instances, from the blood of the experimental animals after death.

Bacilli Nos. 3 and 4 were found to kill young rats which were fed on them, but they produced no diarrhoea.

Conclusions.—Bacillus No. 1 is not an organism normally present in human stools, sewage, or drinking water. From its prevalence in the stools and intestines of cases of infantile diarrhoea—being found in 28 cases out of 58, or in nearly 50 per cent.—also from the fact that it causes death preceded by diarrhoea in young animals, in the spleens of which it is invariably found in pure culture, and also from the fact that it was isolated from the stools of a nurse who had contracted the disease from the patients in a ward set apart for that disease, one is led to conclude that this bacillus may possibly be a factor, or one of the factors, in the disease.

REPORTS OF GRANTEES.

PHYSIOLOGY.

J. M. Hamill, M.B., B.C.Cantab.,
Sharpey Physiological Scholar, University College, London.

Intestinal Digestion.

Mr. Hamill has published a paper on the mechanism of protection of intestinal worms and its bearing on the relation of enterokinase to tripsin, in the *Journal of Physiology*, xxxiii, p. 479. The antibody in the tissue juices of intestinal worms is antitryptic in its action, as stated by Wienland, and is not antikinasic, as Dastre and Stassano assert. The antibody, in neutral or acid extracts of intestinal worms, is uninjured by boiling; if, however, the extracts be made even faintly alkaline, their anti-action is immediately destroyed on boiling. The antibody is soluble in weak alcohol, but is precipitated when the concentration is increased to 85 per cent. The precipitate dissolves easily in water, and the resulting solution strongly inhibits the proteolytic activities of the pancreatic juice. The antibody diffuses through colloid membranes.

He has also published in the same journal a paper on the identity of enterokinase and trypsinogen respectively throughout the vertebrates. Enterokinase and trypsinogen obtained from widely differing vertebrates were tested one upon the other, and the resulting mixtures were in all cases found to be active—that is, the substances must have been identical in all the animals chosen.

E. E. Henderson, M.B., F.R.C.S.

Secretion of Intraocular Fluid.

Mr. Henderson has published the results of his research in the *Proceedings of the Royal Society*, B., vol. lxxvii, 1906, on the factors which determine the production of intraocular fluid, by E. E. Henderson and E. H. Starling, F.R.S., and a fuller report in the British Medical Journal of August 26th, 1905.

S. G. Shattock, F.R.C.S., and C. G. Seligmann, M.B.Lond., M.R.C.P.

Effects of Spaying on the Growth of the Pelvis.

The object of the investigation was to discover whether spaying in young animals was followed by a want of the proper growth of the pelvis. The authors had previously made observations in this direction upon the pig and rabbit. The pelvis in such animals, however, differed so little in the sexes that no conclusions could be arrived at. With a portion of the grant a calf has been purchased after spaying and is now being allowed to grow until adult, after which the animal will be slaughtered and the skeleton accurately examined.

T. G. Brodie, M.D., F.R.S.,
Professor Superintendent, Brown Institution.

The grant of money has been expended in paying part of the expenses of two pieces of work.

Respiratory Exchange.

(*a*) A number of experiments have been made with the object of estimating the rate at which oxygen is absorbed and carbonic acid eliminated by man during short intervals of time. The aim has been to obtain a continuous record of the gaseous exchanges. The principle has already been successfully applied for carbonic acid by Professor Lombard. In attempting to record the rate of oxygen absorption many difficulties have been encountered, and it is only quite recently that most of these have been surmounted. Hence it is not possible to enter into the results so far obtained in any detail. A report will be submitted at a later date.

Cardiac Nutrition.

(*b*) A large number of experiments upon the isolated mammalian heart have been performed. The object of these was twofold. In the first place, attempts have been made to study the nutritional value of proteids to the mammalian heart under the conditions of a survival experiment; and in the second place it has been shown that, in the majority of cases, the addition of serum in small doses to the circulating fluid leads to a very injurious effect upon the heart. Many experiments have been made with the object of ascertaining to what constituent this toxic action is to be ascribed. It has been found that the animal's own unclotted blood does not produce the effect when added to the perfusing saline to the amount of 1 in 250. When the same solution clots, however, the toxic action at once develops. The experiments are not yet complete, but many subsidiary points have been made out and will be reported upon shortly.

NEUROLOGY.

Gustav Mann, M.D.,
Physiological Laboratory, Oxford.

Structure of the Optic Thalamus.

The work done has been partially experimental and partly purely histological. He had hoped by unipolar stimulation to localize the effects which one gets on stimulating the thalamus to definite senses, but has had only partial success. The plan he adopted was either to expose the cerebrum, ligaturing the longitudinal sinus; to ablate one hemisphere, leaving the corpus striatum and the thalamus; to make the exposed thalamus his guide as to the exact position of the centres in the thalamic half still covered by the hemisphere and by an electrode shielded in tubing to stimulate the surface of the thalamus covered by the hemisphere. The idea was to study whether the thalamus would react more readily if its own hemisphere is intact, and it does, because painting of the exposed hemisphere with 10 per cent. cocaine necessitates the use of much stronger currents to get any effect from stimulation of the thalamus. After soaking the occipital lobe, upper and under surfaces, for seven minutes in cocaine, shielding the pulvinar with mica, by which the occipital lobe is held up, eye movements which previously were obtained along with neck movements, with one doubtful case, gave negative results with medium strength currents. In the middle, between the middle and posterior subventricular regions, on two occasions distinct ear-movements (both ears simultaneously) were obtained. The reticular nuclei on stimulation seemed to give motor effects more readily in the non-cocainized brain, although the proximity of the internal capsule makes it difficult to be quite certain. The antero-ventricular and subventricular regions gave rise to sniffing movements, and with the current giving the effect *ad maximum*, the cocainizing of the cornu ammonis seemed to produce no effect.

The other method adopted was to ablate the hemispheres completely and to stimulate the thalamus. Medium strength currents produce no effect, and strong currents cause tonic convulsions, especially by spread of current to the internal capsule. Division of the pyramids above the olivary bodies (division was not quite complete) seemed to make no difference if very strong currents were applied to the surface, or medium strength currents

in the region of the red nucleus. The surmise that the thalamus acts through the red nucleus seems to be confirmed.

The histological portion of the research has consisted in mounting and photographing further series of cat and rabbit brains. Two models were made, but the discrepancies between the models was so great as to require further work. The brains of animals without eyes and cochlea are being examined. Thalami of the domestic animals for purpose of surface anatomy have been taken through the paraffin process, and will be exhibited at the Toronto meeting.

C. S. SHERRINGTON, M.D., F.R.S.,
HOLT PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF LIVERPOOL,
and
HERBERT E. ROAF, M.D.

Production of Lock-jaw in Tetanus.

Professor Sherrington and Dr. Roaf have engaged in an inquiry into the manner of production of that which may be in some respects termed the cardinal symptoms of tetanus, namely, the "locked jaw." They have started from the position, lately reached by one of them, that the tetanus toxin alters the reaction of the bulbo-spinal centres so that inhibition is converted into excitation, and hence the movements elicited from various cortical centres become of reversed direction from the normal.

In the case of the movements of the jaw the area wherein the jaw movements are represented is small in the ordinary smaller monkeys, and for that reason unsuited to detailed differentiation. By aid of the grant kindly allowed them by the Science Committee of the Association they have been allowed to examine the condition under tetanus in a large baboon and in an orang-outang. They first made some preliminary observations in the smaller monkeys, especially *Cercopithecus callithrix*. In these they ascertained that:

1. The cortical area of representation of the jaw is divisible into an extensive lower area which yields opening of the jaw, and a much less extensive upper area, which yields closure of the jaw. From this upper area the movement of the jaw obtainable, namely closure, is less readily excitable than is opening from the lower, so that occasionally in an experiment closure may not result at all from the cortical excitation.

2. In the opening movement produced by cortical excitation the action of the muscles of the crossed half of the jaw is much greater than that of the muscles of the uncrossed side of the jaw, so also with the closure movement. If the stimulation of the cortex is weak, only the muscles of the crossed side of the jaw contract. These points they ascertained by splitting the jaw at the symphysis, and freeing each half from the muscles of the tongue and mucosa of the mouth. On stimulating the left cortex the right half of the jaw only opens, the left remaining motionless, and vice versa on stimulating the right hemisphere.

3. After inoculation of tetanus toxin (0.5 mg.) in the right facial nerve, the "locked jaw" affects first the nervous mechanism of the right half of the jaw, and may be confined to that half for a couple of days or so before affecting the left half.

4. After the lock-jaw has set in the stimulation of the cortex of the hemisphere of the crossed side from the incipient lock-jaw causes, instead of opening of the jaw, closure of the jaw; the cortical movement is reversed.

After confirming these results in the case of a large baboon we finally succeeded in testing them on one of the man-like apes—namely, the orang-outang. Although the present is but a preliminary report, we may give some details in regard to this latter experiment because of the approximation to human tetanus.

The orang was a large one, weighing 45 lb. Its brain was developed, weighing no less than 305 grams. The observation was carried out by three successive operative stages. The Rolandic region of the cortex of the right side was first laid bare under anaesthesia and full aseptic precautions. A map was drawn of it, and it was carefully stimulated in the face and arm areas respectively. The former area was minutely tested from joint to joint by unipolar faradization, and the extent and topographical arrangements of the points yielding jaw opening and jaw closing respectively were noted on the scale map as exactly as possible. The area for jaw closure was found to be above and in front of that for jaw opening, and to be much less extensive than the latter, not more than about one-tenth of the extent of the latter. These observations having been made, the dura was stitched together and the wound closed under full aseptic precautions. Later a branch of the right facial nerve was carefully exposed, and into its sheath rather less than 1 mg. of dry tetanus toxin was inserted. Two days later initial lock-jaw appeared. The condition was allowed to become evident, though not marked, the animal still taking food. It was impossible to say by inspection that it was not bilateral, but it proved under experimental analysis to be still in the unilateral stage. The left cortex was then exposed, and a scale map drawn, and the whole area examined by unipolar faradization. It was then found that all that part of the area which corresponded in position with the area which on the previously examined (right) side had yielded opening of the jaw, now on this left side yielded closure of the jaw except at its extreme lowest points, whence opening of the jaw was still usually obtainable. The previously examined right cortex was then laid bare once more and tested with the electrodes. In respect to the jaw movements, the reactions obtained from it were hardly different from those got prior to the inoculation.

The lower jaw was then carefully divided at the symphysis and each half freed from the muscles of the tongue and from the mucous membrane of the mouth. Each half was thus made capable of movement freely independent of the opposite half. The left cortex was then again stimulated and it was found that stimulation with fairly strong stimuli gave opening of the left half of the jaw simultaneously with strong closure of the right half. Similar stimulation of the corresponding area of the right cortex gave, on the other hand, bilateral opening more marked on the crossed side. The stimulation of other areas of the cortex agreed with the results previously obtained by one of us in conjunction with Professor Grünbaum.

In the course of the observations they saw the occurrence of epileptic seizure, following on cortical stimulation, confined completely to one half of the lower jaw, and that half the half on the same side as the seat of inoculation with tetanus toxin.

It appears therefore clear that:

1. An area of cortical representation for closure of the jaw exists in the orang-outang, but is very much less extensive than that for opening of the jaw.

2. That the extensive area for opening of the jaw in the orang has its reaction altered into closure of the jaw in the lock-jaw produced by tetanus toxin.

3. That the movement of opening of the jaw, as produced by cortical excitation of one hemisphere in the orang, is chiefly an action of the muscles of half the jaw on the crossed side to the stimulation, and that sometimes the action is entirely confined to the muscles of the crossed side.

4. That the condition of the "locked jaw" begins unilaterally on the same side as the nerve trunk inoculated, and that the condition is for a time confined to the nervous mechanism of that side, although later it involves also that of the opposite side as well.

5. It appears possible that by splitting the symphysis the condition of lock-jaw may be at least temporarily relieved.

Professor Sherrington and Dr. Roaf propose to shortly publish the results with all necessary detail.

N. BISHOP HARMAN, M.B., B.C.Cantab., F.R.C.S.,
ASSISTANT DEMONSTRATOR OF PATHOLOGY, MIDDLESEX HOSPITAL,

Nuclei of Origin of Nerves of Facial Musculature.

Operations have been performed under anaesthetics at University College Physiological Laboratory upon six cats; in three section of parts of the facial nerve on the face, and in three section of the whole nerve at the stylomastoid foramen was performed. The animals recovered, and the paralyses produced were typical of the lesions. After fourteen days the animals were killed and the heads "fixed" and preserved. The medullae of these heads are now being prepared by Mann's modification of Nissl's method to permit of microscopic examination of the bulbar nuclei whence the cut

nerves arise. This work is very long and laborious, and the result cannot be completed for some time yet. This part of the work is being done at Middlesex Hospital.

W. E. Dixon, M.D.,
ASSISTANT TO THE DOWNING PROFESSOR OF MEDICINE, UNIVERSITY OF CAMBRIDGE.

Innervation of the Cutaneous Vessels.

During the past year Dr. Dixon has performed a considerable number of experiments with a view to determining the innervation of the vessels of the skin and the relative effect of drugs. He has employed two methods in these experiments: (1) The plethysmographic and (2) the method of perfusion. For the latter purpose, isolated portions of the skin were used. The nerve supply to the cutaneous vessels exhibits certain important differences from that of other tissues, but as the experiments are still in progress he desires that his full report may be deferred until the experiments have more nearly reached completion.

Arthur Edmunds, M.S., F.R.C.S.,
DEMONSTRATOR OF PHYSIOLOGY, KING'S COLLEGE.

Nerve Degeneration and Regeneration.

Mr. Edmunds reports that during the past year he has been engaged, in conjunction with Drs. Mott and Halliburton, in the study of the phenomena of degeneration in transplanted nerve. Some experiments have also been performed to study the rate of myelination in regenerating nerve. The whole work is now concluded and will very shortly be published in full.

Basil Kilvington, M.D.,
MELBOURNE UNIVERSITY.

Regeneration of Nerves.

The results of his research were embodied in a paper on regeneration of nerves with regard to the treatment of certain paralyses, and published in the British Medical Journal of April 29th and September 16th, 1905.

W. B. Warrington, M.D.,
LECTURER ON NEUROPATHOLOGY, UNIVERSITY OF LIVERPOOL.

Morbid Histology of the Nervous System.

Two papers are now in the press, and will shortly be published in the *Review of Neurology and Psychiatry*, on Acute Disseminated Myelitis and on Obliterative Arteritis in the Brain and Spinal Cord.

The histology of some 10 cases has been investigated altogether, and the material is also used for teaching purposes.

F. C. Eve, M.D.,
ASSISTANT PHYSICIAN, VICTORIA HOSPITAL FOR CHILDREN, HULL.

Pressure of Cerebro-spinal Fluid.

A simple clinical instrument has been devised for performing lumbar puncture and thereby measuring the pressure of the human cerebro-spinal fluid. In consists of a connecting Y-piece, to which are adapted the hollow needles, the exit tube, the manometer, and a detachable handle.

In over 100 clinical cases the instrument has shown itself convenient, and has yielded useful information in the therapeutic relief of intracranial tension, which was frequently found to be twofold to sixfold its normal value.

In several cases striking improvement followed the puncture,[1] while in none did harm appear to result. In one case interesting rhythmical variations of cerebro-spinal pressure were observed with the help of this instrument.[2] It is made by Messrs. Allen and Hanbury, under the name of Cerebro-spinal Manometer.

David Orr, M.D.,
COUNTY ASYLUM, PRESTWICH, MANCHESTER,
and
R. G. Rows, M.D.,
COUNTY ASYLUM, LANCASTER.

Action of Toxins in Nervous System.

Dr. Orr has performed forty operations. At first these consisted in performing laminectomy upon rabbits with a view to division of the posterior roots. It was found after repeated trials that the rabbit was an unsuitable animal for the purpose, and he now holds a licence to perform the experiment upon dogs, and hopes next year to extend the research in this and other directions to monkeys.

The primary object of the work was to prove that toxins spread upwards in the lymph chambers of peripheral nerves and attacked the central nervous system at the point where the spinal roots lose their neurilemma sheath—the point from which Dr. Rows and Dr. Orr had already shown the initial degeneration in tabes dorsalis proceeds.[1] The method employed was as follows: Dr. Orr selected various organisms, for example, *Staphylococcus pyogenes aureus*, *Bacillus pyocyaneus*, *Bacillus coli* (both mild and virulent), and Gaertner's bacillus, and having made of each a broth culture, this medium with the growing organism was enclosed in a celloidin capsule and placed with antiseptic precautions underneath the sciatic nerve of a rabbit. These experiments proved successful, and the method was utilized to produce degeneration of the cranial nerves by placing a capsule charged with organisms under a rabbit's cheek.

When the capsules were placed under the sciatic nerve a lesion of the lumbo-sacral enlargement followed. This, traced by Marchi's osmic acid method, showed conclusively that degeneration of the intramedullary portion of the sensory roots always begins where their fibres, in plunging into the posterior columns, lose the neurilemma sheath; and that from this point the degeneration process extends into the root-entry zone and thence along the collaterals and terminals into the grey matter of the cord.

Such a lesion, the result of toxic action alone, is indistinguishable from that found in early tabes dorsalis in man, and has been sufficiently marked to enable one to obtain photographs of it.

The degree of lesion produced seems to vary (1) with the virulence of the organism employed, (2) with the time the organisms live in the capsules.

In his later experiments he has introduced a fresh capsule every fourteen days, and in some cases he has placed two instead of one by the side of the nerve.

After the introduction of a capsule under the rabbit's cheek degeneration of the cranial nerves has resulted from the upward passing of toxins to the brain. This observation has extended the research from tabes dorsalis to the subject of cranial nerve palsies, and the experimental results will first be carefully compared with the degenerations affecting the cranial nerves in 12 cases of general paralysis of the insane.

He finds that the degeneration of cranial nerves, as in the case of the spinal roots, commences at the margin of the pons and medulla where neurilemma sheath is lost.

The above experiments have been controlled by placing a capsule containing sterile broth in the above-mentioned situations. The controls have borne out the statement that intramedullary degeneration of the spinal roots can be caused by the ascent of toxic lymph from the periphery, by giving a negative result.

During the past year Dr. Rows has operated on 24 rabbits and 5 dogs. Most of these operations have consisted in placing celloidin capsules which contained bouillon cultures of various micro-organisms—*Bacillus pyocyaneus*, *Bacillus coli*, *Bacillus gaertneri*—in different parts of the body of the animal. The capsules have been put under the gluteus maximus, under the erector spinae, under the skin of the cheek, and under the skin of the thorax and abdomen. By using these capsules, which allow the toxins formed by the organisms to diffuse through their walls while the organisms themselves have been retained within, he has been able to provide a constant supply of toxins in the neighbourhood of various nerves and at the same time to avoid setting up any inflammatory process whatever.

The spinal cords which have been examined have been treated with the Marchi method, which enables one to observe any degeneration of the nerve fibres.

As a result of the examination of the peripheral nerves and of the spinal cord, he has found that the fibres in the nerves outside the cord have been practically unaffected, but a marked degeneration was observed in them after they had passed through the pia mater and had lost their sheath of Schwann.

This degeneration commenced at the point where the fibres entered the cord and spread along them as they ascended the cord in the posterior columns and as they

[1] *Lancet*, April, 1905.
British Medical Journal, February, 1906.

[1] *Brain*, Winter. 1904.

passed into the grey matter of the posterior cornua. Similar changes were present also in the anterior root fibres between the edge of the cord and the cells from which they had sprung.

These changes in the nerve fibres were found to be limited almost entirely to those segments of the cord which supplied nerves to the area in which the capsule had been placed. At the same time, neither the cells of the corresponding posterior root ganglia nor of the anterior cornua showed any morbid change which could possibly have produced the degeneration in the fibres. These degenerations must have been caused by the toxins which diffused out of the capsules and ascended in the perineural sheath of the nerves and attacked the fibres immediately they had passed through the pia mater and had lost their sheath of Schwann.

Moreover, they correspond absolutely with the degenerations which are seen in early cases of tabes dorsalis, which, with Dr. Orr, he has described in papers published in *Brain* and in the *Review of Neurology and Psychiatry*.

The results which he has obtained by putting a capsule containing an active culture into the cheeks of rabbits and dogs have been exactly similar in character. In both animals the toxin has ascended by the fifth nerves, and has produced a degeneration in the fibres of the motor and sensory cranial nerves which commenced at the edge of the pons and medulla and spread along the fibres into the central nervous system.

These observations open up the whole question of the various palsies of the cranial nerves, and it is to this part of the subject that he will direct his attention during the next year, applying the methods mentioned above to dogs and monkeys.

S. H. BOWN, M.D.,
UNIVERSITY COLLEGE HOSPITAL.

Dr. Bown has been engaged during the past year (in conjunction with Dr. CHARLES BOLTON) on the following research:

Action of Diphtheria Toxin on the Central Nervous System.

Three monkeys (*Macacus rhesus*) were injected with toxin derived from a virulent culture of *B. diphtheriae*, and were killed after a few days, when they were showing well-marked symptoms of toxaemia. The cords and brains were hardened in formalin, followed by alcohol, and then embedded in paraffin. Sections are being cut and stained by Nissl's method; the results so far obtained have confirmed those which they obtained last year by the same method in the case of rabbits—namely, degeneration of the motor cells of the spinal cord and medulla, the degeneration consisting of the following changes:

1. Swelling in various degrees.
2. Chromatolysis.
3. Eccentricity of the nucleus, with indistinctness of the nuclear membrane in many cases. In some cases also the nucleus was swollen.

The work is not yet quite complete, but Dr. Bown hopes to have it ready for publication shortly.

PATHOLOGY.

F. H. THIELE, M.D.,
PATHOLOGIST, UNIVERSITY COLLEGE HOSPITAL, LONDON.

Blood Pressure.

The research upon which he is engaged is not yet completed. He has been able to obtain definite results from stimulation of the optic thalamus, corpus striatum, corpora quadrigemina, the cerebellum, and its peduncles in the blood pressure and respiration. From these it appears that the cerebellar cortex has no influence upon either. The optic thalamus influences these only through a localized area.

Stimulation of the corpus striatum constantly gives rise to a fall of blood pressure. The corpora quadrigemina give most marked results; usually a large rise of pressure with marked vagus effects in the case of the anterior. He is at present engaged in further localizing these results, and endeavouring to trace the tracts of conduction.

As regards the research on arterial disease with which he is engaged, in conjunction with Dr. Charles Bolton, the investigation is incomplete. Their plan has been to inject substances which have: (1) A marked effect in raising blood pressure; (2) a purely toxic effect; (3) influence in causing the disease in man, but whose mode of action is uncertain; (4) a depressor effect on the blood pressure; (5) further, they are investigating the effect of sections of the vagi and the peripheral nerves on the vessels and heart. They have confirmed the results of Josué as regards the suprarenal extract and have produced arterial disease by diphtheria toxin and ergot.

They have made further experiments to test the effect of the substances used on the blood pressure, and provisionally come to the conclusion that the substances cause arterial change by their toxic properties and not by the effect on the blood pressure.

The investigation is, of course, very incomplete. Numerous sections of the heart and vessels of these cases have been cut.

F. A. BAINBRIDGE, M.D.,
FROM THE GORDON LABORATORY GUY'S HOSPITAL.

1. *The Post-mortem Lymph Flow.*

It was shown by Asher that when an animal was killed shortly after the production of hydraemic plethora, a large and prolonged *post-mortem* flow of lymph occurred; a similar result was obtained by Mendel and Hooker after the injection of peptone and similar bodies. All these observers considered that the lymph was not formed by filtration, owing to the fall of blood pressure after death; Asher suggested that it was the result of increased tissue-metabolism, associated with glandular secretion.

In his experiments the venous pressure was recorded after death in the portal vein and the vena cava; it became equal in the two veins almost immediately after death. When hydraemic plethora was produced by the injection of strong sugar solutions or large quantities of normal saline, and the animal killed a few minutes later, the venous (and capillary) pressure in the liver was very much higher just after death than in the normal animal during life, and did not fall to the normal level until an hour or more after death. The lymph flow from the thoracic duct continued for an hour or longer after death. It was derived mainly from the liver, since ligature of the portal lymphatics almost abolished the *post-mortem* flow.

There was, in fact, a direct correspondence between the *post-mortem* venous (and capillary) pressure in the liver and the flow of lymph from that gland. Since the liver is the only organ in the body in which the capillary pressure after death is above the normal, the lymph flowing from it is no doubt formed by filtration. That the lymph is not formed by increased tissue metabolism is shown by two observations: in the first place, there is no *post-mortem* secretion of bile or pancreatic juice; secondly, the injection of dextrose—after previously bleeding the animal—does not raise the capillary pressure in the liver or increase the *post-mortem* lymph flow. If dextrose acted on the tissues it ought to increase the lymph flow. The small residual flow from the thoracic duct, after ligature of the portal lymphatics, represents the squeezing out from the intestines by peristaltic movements of lymph formed during life; it does not occur if the animal is killed immediately after the injection of sugar, so that there is no time for lymph formation in the intestines.

Although much stress has been laid on Asher's experiments as telling against Starling's view that lymph is formed by filtration, these observations appear directly to support the filtration hypothesis.

The *post-mortem* lymph flow following the injection of peptone is not accompanied by an increased venous pressure in the liver. It is due either to increased capillary permeability, or to changes produced in the liver by peptone—as shown by Kustnine—or to both these factors.

All the experiments were carried out on dogs, anaesthetized with the A.C.E mixture.

2. *Effects of Ligature of Hepatic Artery or Portal Vein.*

Conflicting results have been obtained by different observers after ligature of the hepatic artery; most of them obtained necrosis of the liver followed by death, whereas others found but little change. These divergences depend upon the fact that the liver receives arterial blood, not only from the hepatic artery, but also from numerous small collateral branches running in the gastro-hepatic omentum; these collaterals vary in number in different animal species, and even in different individuals of the same species. In his experiments ligature of the main trunk and all visible collaterals (in cats) caused death in twenty-four hours. Microscopically, the liver

cells were severely damaged, but necrosis was never observed. In all probability the liver cells still received a small amount of arterial blood.

Simple ligature of the main hepatic artery deprives the liver of most of its arterial blood, and greatly lessens the supply of oxygen to the cells. After this operation there was a marked increase in the fat in the liver cells; the fat was most abundant in the inner part of the lobule, in which the liver cells were atrophied. The fat gradually disappeared after two or three weeks, as the collateral circulation developed.

A deficiency of arterial blood naturally tells most severely on the inner part of the lobule; and the presence of fat is no doubt a result of the lack of oxygen. In order to ascertain whether the fat arises by a proteid breakdown or is an infiltration, chemical analyses of the liver are in progress, but are not yet completed.

Ligature of a branch of the portal vein is followed by rapid atrophy of a large portion of the affected lobe; the inner portion of the lobules is especially affected. After a few weeks considerable fibrosis of the interlobular connective tissue takes place, as was observed by Solowieff.

The experiments were carried out on cats. Soudan III was used as the stain for fat in the histological examinations.

T. Gillman Moorhead, M.D.,

DEMONSTRATOR OF PATHOLOGY AND ANATOMY, TRINITY COLLEGE, DUBLIN.

The Action of Lymphatic Extracts.

The work carried out in connexion with the grant for this purpose was in continuation of that which was reported last year, and in particular was devoted to an attempt to produce thymotoxic serums.

In the last paragraph of last year's report it was stated (1) that attempts were being made to "immunize" a goose against guinea-pig's thymus; and (2) that similar attempts were being made to immunize guinea-pigs against rabbit's thymus. These attempts were persisted in for over nine months. One goose received altogether the emulsified thymus gland of sixty-five guinea-pigs. The injections were given intraperitoneally, and on an average about two injections were given per week. During this process blood was taken on four occasions from the jugular veins, and was investigated with a view to determine whether it had acquired any specific properties. The serum was not found to have any specific agglutinating powers in connexion with emulsified thymus glands obtained from guinea-pigs, nor was it found to have any leucotoxic properties when tested with leucocytes on the warm stage. Injections of serum were also made intraperitoneally into guinea-pigs. The protocols of these experiments show that no special change was noticed. It is unnecessary to quote all the details, but one or two may be recorded as illustrations:

G. P. W. received two injections of goose serum (8 c.cm. and 4 c.cm.): killed a day after second injection. Spleen, thymus, and lymph glands normal. No blood changes during life.

G. P. M. received eight injections of goose serum, each 2 c.cm. in amount. The injections were given every second day. Death four days after last injection. During life there was a marked fall in the number of white cells from 11,000 per c.cm. to under 3,000 per c.cm., and they remained at this low level during the last week of life. There was also a gradual increase in the number of basophiles present in the blood from 0 per cent. up to 27 per cent. *Post mortem:* Spleen normal in size, Malpighian corpuscles prominent; thymus gland normal in every way; lymph glands universally enlarged and congested; bone marrow showed unusual number of basophile cells; peritoneum thickened.

This was the only experiment in which any striking blood changes were found, and repetition on exactly similar lines did not give similar results. The records of other experiments, when the serum was given either in single large doses or in small repeated doses, show results as negative as that shown in G. P. W.

Several guinea-pigs were subjected to inoculations of emulsified rabbit thymi, and the serum of the former was collected after from ten to twenty injections. This serum was examined along lines similar to those mentioned above in connexion with the goose serum, but no thymotoxic or leucotoxic properties could be proved to exist. In all experiments the thymi of young animals were employed, and the serum injections also were made into young animals.

The general conclusion to be arrived at is that not only is it impossible to immunize rabbits against guinea-pig's thymi, but it is also impossible to immunize guinea-pigs against rabbits or geese against guinea-pigs.

Leonard S. Dudgeon, M.R.C.P., M.R.C.S.,

LOUIS JENNER RESEARCH SCHOLAR: DIRECTOR OF THE CLINICAL LABORATORY AND BACTERIOLOGIST, ST THOMAS'S HOSPITAL, LONDON.

Phagocytosis in Peritoneal Infection.

An investigation has been carried out into the nature of the phagocytes which appear within the first twenty-four hours subsequent to the injection of certain micro-organisms, toxins, and non-bacterial substances. These investigations were made on the blood, bone-marrow, peritoneal exudate, and great omentum, subsequent to intraperitoneal injections of the following micro-organisms, toxins, and certain other substances—namely: *Staphylococcus pyogenes aureus, Staphylococcus albus, Streptococcus pyogenes, pneumococcus, Bacillus pyocyaneus, B. typhosus, B. coli, B. coli* killed by exposure to heat at 60° C. for twenty minutes, *B. aërogenes capsulatus, B. coli* after previous injection of morphine, filtered cultures of the *B. pyocyaneus*, a 2 per cent. sterile solution of neucleic acid, a sterile solution of normal saline, and a sterile suspension of finely-divided chalk in normal saline.

The inoculations were made into the peritoneal cavity of rabbits and guinea-pigs, which were killed at the end of the following intervals: fifteen minutes, one hour, two hours, four hours, six hours, and twenty-four hours. The blood was examined in every instance before and immediately after each injection of the above substances. The total count of leucocytes per cubic millimetre of blood, differential counts of 500 leucocytes, a differential count of 1,000 marrow cells, and a similar examination of the cells of the peritoneal exudate were made in every instance. In addition, the peritoneal fluid was examined in the fresh state and in the warm stage, and stained film preparations were also made from the great omentum.

The Great Omentum.—Three guinea-pigs received intraperitoneal injections, with strict bacteriological precautions, of sterile normal saline, and were killed at the end of two, four, and eight hours respectively. In every instance the peritoneal fluid was sterile, but the *Staphylococcus albus* was grown from the omentum. Seven guinea-pigs received intraperitoneal injections of a sterile suspension of chalk in normal saline, and were killed at the end of two, four, eight, and twenty-four hours respectively. In every instance the peritoneal exudate was sterile, but in six out of seven cases the white staphlococcus was cultivated from the great omentum.

The Blood.—The leucocytes were counted by means of the Strong-Seligmann method, and the film preparations were stained by our modification of Leishman's method. In addition to the enumeration of the leucocytes, as already mentioned, careful examination was made for englobing of the erythrocytes and ingestion of bacilli by the leucocytes.

The Peritoneal Exudate.—Fluid was present in a large number of all the early experiments and diminished in the twenty-four-hour cases, with the exception of those examples in which the peritonitis was due to the colon bacillus and the *Bacillus pyocyaneus.* In most instances the chief cell in the peritoneal fluid in the fifteen-minute experiments was either the small lymphocyte or the coarsely granular eosinophile, while in all other experiments the finely granular polynuclear cell predominated. Macrophages were frequently found in both the earlier and later instances. One of the most important phagocytes in the fifteen-minute, one-hour, and two-hour cases was the coarsely-granular eosinophile, which was very often found to be phagocytic, and in some examples a large number of these cells were phagocytic.

The Bone Marrow.—The bone marrow was examined in every experiment over a period of fifteen minutes up to and including twenty-four hours from the onset of infection, and the non-granular lymphoid type of cell was almost invariably found to be the most important leucocyte in these cases. Film preparations were made in each instance as soon as the animal died, and were stained by Mr. Dudgeon's modification of Leishman's method.

JOHN EYRE, M.D.,
BACTERIOLOGIST, GUY'S HOSPITAL.

Bacteriology of Pneumonia.

Dr. Eyre reports that he has (in association with Mr. A. N. Leathem) collected the results of some of the experiments carried out under his grant into a paper, on a study of different strains of pneumococci, with special reference to the lesions they produce, now in proof, and which will appear in the *Journal of Pathology and Bacteriology*. Further work in this connexion is in active progress, but is not yet sufficiently advanced for communication.

Malta Fever.

A paper embodying observations on the life-history of *Micrococcus melitensis* is in preparation and will shortly be ready. In the course of this work an operation table for animals which should be readily sterilizable was found indispensable, and as there was nothing suitable to be obtained at the time, one was designed and built which fulfilled all the requirements. This was shown at the November, 1905, meeting of the Physiological Society and described in its *Proceedings*.

DAVID NABARRO, M.D.,
ASSISTANT PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, UNIVERSITY COLLEGE, LONDON.

Acid-fast Organisms in Butter.

Many Continental observers have examined butter for the presence of the *B. tuberculosis* and other acid-fast bacilli, but, so far as he is aware, there are no records of similar observations in this country. The earliest investigators, Brusaferro, Roth, Schuchardt, Gröning, and Obermüller, all found acid-fast organisms in butter, which they regarded as the true *B. tuberculosis*, relying solely, as they all appear to have done, upon the pathological lesions produced in injected guinea-pigs and without making cultures from those lesions or inoculation experiments from the infected into healthy animals. Rabinowitch[1] examined 30 butters in Berlin—inoculating 2 guinea-pigs with each sample—and 50 in Philadelphia, and in 23 out of the 80 cases, that is, in 28.7 per cent., she found in the inoculated guinea-pigs "lesions which macroscopically and microscopically resembled true tuberculosis, but could be easily distinguished from it on closer investigation." In none of the 80 cases was the true *B. tuberculosis* found.

Petri[2] about the same time examined 102 samples of butter, and found acid-fast bacilli in 71 = 69.6 per cent., but, unlike Rabinowitch, he found the true *B. tuberculosis* in 33 = 32.3 per cent.; in 17 cases the *B. tuberculosis* was present alone, and in 16 associated with the new acid-fast tubercle-like bacillus. This new acid-fast bacillus, now known as the Petri-Rabinowitch bacillus, was present in rather more than half the butters examined (54 out of 102 = 53 per cent.).

This number is very much higher than that obtained by Rabinowitch (28.7 per cent.), so that great variations in this respect seem to occur in different localities. His own results, which are at present founded upon a relatively small number of observations (twelve), show that the percentage of butters in London containing acid-fast organisms may be greater even than that obtained by Petri (11 times out of 12 = 91.7 per cent).

Method Adopted.—The butter was melted in a glass capsule at as low a temperature as possible, and 2 c.cm. injected with antiseptic precautions into the peritoneal cavity of a guinea-pig. As a rule two guinea-pigs were injected with each sample. The animals were then kept under observation and their weights taken at intervals. Those animals that had not previously died as a result of the pathogenic action of the butter were killed at varying periods (four to twelve weeks) after injection. Most of the guinea-pigs lost weight during the experiment, one animal falling from 750 grams to 500 grams in twenty-seven days. *Post mortem* one finds signs of peritonitis of a chronic plastic or caseating type, the kidneys being usually adherent to the liver and spleen, and the latter itself sometimes adherent to the diaphragm. The abdominal glands (lumbar, retroperitoneal, gastric, retrohepatic, mesenteric) are often considerably enlarged, and nearly always caseous. Injection of this caseous material into a guinea-pig in two cases failed to show any evidence of true tuberculosis. Occasionally there were small nodules in the liver and spleen, but so far he has been unable to find any true giant cells or acid-fast organisms in sections of organs and tissues examined. No lesions were found in any other part of the body.

Summary of Results.—Twelve butters were examined, and acid-fast bacilli found in 11 (91.7 per cent.), either in films of the caseous matter or on cultivation. In all the 11 cases the typical abdominal lesions were found more or less marked, sometimes very closely resembling the lesions produced in the guinea-pig by the true *B. tuberculosis*, but in no case did he obtain unequivocal evidence of the presence of the true tubercle bacillus in any butter examined. In 6 out of the 12 cases acid-fast bacilli were found in both films and cultures. Five of the butters were sufficiently pathogenic to kill guinea-pigs in from seven to twenty-seven days.

The acid-fast bacilli isolated were not all alike. Some of them were the typical Petri-Rabinowitch bacillus, which may be distinguished from the true *B. tuberculosis* as follows (Rabinowitch):

B. tuberculosis.	*Tubercle-like Acid-fast Butter Bacillus*
1. Grows with difficulty and only at the body temperature.	Grows readily in two or three days and on all media. Growth is more profuse than tubercle, and takes place even at room temperature.
2. No colour.	Yellow to copper colour.
3. Pleasant fruity smell in broth.	Unpleasant ammoniacal odour.
4. No indol in glycerine broth.	Traces of indol, and the broth becomes very cloudy on the addition of acid.

One of his organisms was somewhat like a streptothrix and although acid-fast in smears and on cultivation, lost its acid-fast property on subculturing. It was red in colour and in several respects resembled a bacillus isolated by Markl from butter in Vienna.

He has not yet completed the investigation of the various acid-fast organisms isolated, but may refer to the fact that Tobler described five varieties of acid-fast bacilli as occurring in Zurich butter.

Although pathogenic for the guinea pig on intraperitoneal injection, it does not follow that such butters are harmful to human beings, for, as Rabinowitch and others have shown, these acid-fast bacilli which are pathogenic for the guinea-pig are not pathogenic for rabbits and white mice. These experiments show, however, that it is not sufficient to rely upon the lesions produced in animals in order to diagnose the presence of the *B. tuberculosis* in butter, milk, cheese, etc., but that in all cases in which lesions are found in the inoculated guinea-pigs, cultivations should be made and also if possible injections of emulsions of the diseased tissues into healthy animals.

In conclusion, Dr. Nabarro states that four samples of margarine bought at the same shops as some of the butters, were examined in a similar manner, with the result that no acid-fast organisms were found and the inoculated animals showed no lesions of any kind *post mortem*.

[1] Rabinowitch, *Zeitschrift für Hygiene*, 1897, vol. xxvi. p. 90.
[2] Petri, *Arbeiten aus der Kaiserliche Gesundheitsamte*, 1898, p. 1.

PHARMACOLOGY.

G. S. HAYNES, M.B., B.C.Cantab.,
PHARMACOLOGICAL LABORATORY, UNIVERSITY OF CAMBRIDGE.

The Pharmacological Action of Digitalis, Strophanthus, and Squill.

The object of his research was to compare the actions of the three official cardiac tonics. In the first place it was necessary to obtain reliable preparations, and fresh tinctures were carefully prepared by a competent chemist. These were then standardized physiologically,[1] and it was found that whereas the tinctures of digitalis and squill were equally toxic, that of strophanthus was about nine times as toxic as either. The method adopted was the hypodermic injection of small doses of the drugs diluted with saline solution into the dorsal lymph sacs of male frogs. It appears that 2½ minims of the tincture of digitalis or squill diluted one-half should kill a male frog of 20 grams weight by arresting the heart in systole within two hours, but that to produce a like result only ¼ minim of the tincture of strophanthus is required. Equal quantities of the respective tinctures were introduced into the stomachs of pithed cats, and it was found that strophanthus arrested the heart in less than two hours, while digitalis and squill had no effect on the

[1] Dixon and Haynes, *Medical Magazine*, January, 1906.

blood pressure in more than that time. Digitalis caused considerable corrosion of the gastric mucous membrane, squill rather less, and strophanthus had hardly any irritant action at all. Experiments were also conducted on isolated mammalian hearts. The hearts of young rabbits were perfused with a Ringer-Locke solution, the drugs, in varying doses, added to the perfusing fluid, and their actions noted. It was found that squill has the most powerful action in increasing the output per minute from the heart, in that it induces a more vigorous and complete systole, which more than counterbalances the increased slowing. Strophanthus causes more slowing than the other two drugs, but does not increase the force of contraction to the same extent. Digitalis is inferior to squill in both respects.

Perfusion experiments were also conducted on hearts which had been previously subjected to the action of atropine, and it was found that these drugs acting on the atropinized heart cause very much less slowing than they do when acting on the normal heart.

By measuring the amount of fluid passing through the coronary arteries before and after perfusion by the drugs, the amount of constriction of the vessels was relatively determined. It appears that squill has most action in this respect, digitalis rather less, and strophanthus very little.

Summary of Results.

1. When standard tinctures of the three drugs, digitalis, squill, and strophanthus, are freshly prepared strictly according to the *British Pharmacopoeia*, then, supposing the toxicity of digitalis to be represented by one, squill will also be one, but strophanthus nine or ten.

2. These drugs all have a specific action on the heart, which can be divided into two stages: a first stage characterized by stimulation of the cardiac muscle and of the vagal nerve endings; and a second in which the tonus is much increased and the rate accelerated by the extension of the action on the muscle to the excito-motor area of the heart.

3. Tincture of squill differs in its action from the other drugs in the following ways:

(*a*) In therapeutical doses it increases the force of contraction to a considerably greater extent than either digitalis or strophanthus. Not only is systole more complete and prolonged, but diastole also.

(*b*) It slows the heart-beat more than digitalis, and, considering its relative toxicity, more than strophanthus. This, however, is its effect only so far as the peripheral vagal mechanism is concerned.

(*c*) It produces more vaso-constriction of the coronary vessels than either digitalis or strophanthus.

4. Tincture of digitalis is less efficient as a cardiac stimulant than squill, in that it has not the same effect in increasing the energy of contraction of the heart. Moreover, it is not possible by altering the relative dosage of digitalis to produce a stimulant effect in any way comparable to that of squill. Digitalis has less peripheral effect on the vagal mechanism than squill.

5. Tincture of strophanthus, being eight to ten times more toxic than the other two drugs, it is hardly fair to compare it with equal quantities of them. Such comparisons, however, serve to confirm the experiments made on frogs, showing the greater activity of this drug. With regard to its effect on the force of the heart-beat, strophanthus occupies a position considerably below squill, and rather less than digitalis. It slows the heart more than either of the two other tinctures in equal doses. In contradistinction to digitalis and squill, strophanthus has practically no action on the coronary vessels. At first it slightly increases the outflow from the coronary veins, the result of metabolites set free by the increased work of the heart. This drug is very apt to cause sudden death of the heart without previous excitation of the excito-motor area.

6. After previously atropinizing the excised heart, perfusion of these drugs causes very little decrease in the heart-rate. Their local action on the peripheral vagal mechanism is a large factor in the production of the usual slowing seen during their exhibition to patients.

7. To mucous membranes digitalis is the most irritant, then comes squill, while strophanthus has very little irritant action.

8. In any case in which it is desirable to raise the blood pressure and stimulate the heart, squill should be used in preference to the other two drugs.

Dr. Haynes wishes to take this opportunity of expressing his great indebtedness to Professor W. E. Dixon for much valuable advice and assistance, and to the Science Committee of the British Medical Association for their grant towards the expenses of this research.

Walter Malden, M.D.,
Pharmacological Laboratory, Cambridge.

Pharmacology of Arsenic.

Experiments have been carried out as to the effect of arsenic in medicinal doses on composition of the blood and lymph; on the establishment of immunity to arsenic by gradually-increasing doses to dogs, with a view to proving how that immunity is produced.

A. R. Cushny, M.D.,
Professor of Pharmacology, University College, London.

Action of Drugs on the Uterus.

A considerable number of experiments have been performed on rabbits, cats, and dogs, to elucidate the action of drugs on the uterus. In some of these the movements were observed directly, but in the majority this was supplemented by graphic registration by means of a system of levers resembling a myocardiograph. The chief drugs examined were adrenalin, nicotine, pilocarpine, atropine, quinine, ergot, barium, and aloin. In the course of the analysis of their action it was found necessary to examine the effects of stimulation of the hypogastric nerves, anaesthesia, anaemia, and local mechanical and electrical stimulation. The action of several of these drugs—adrenalin, nicotine, and ergot—varied with the condition of the uterine nerves, and this proved to be different in different species, and also in different stages of gestation. A demonstration of some of these effects was given before the Physiological Society. He is continuing these researches, and hopes to publish the results in the near future.

W. H. Thompson, M.D.,
Professor of Physiology, Trinity College, Dublin.

Anaesthetics and Renal Activity.

The first part of his investigation was completed during the year, and the result published in full in the British Medical Journal, March 17th and 24th, 1906.

A continuation of the inquiry is in progress.

Meetings of Branches & Divisions.

[*The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the* Journal.]

CAMBRIDGE AND HUNTINGDON BRANCH.

The annual meeting was held at Peterborough on Thursday, June 14th. Dr. Kirkwood occupied the chair.

Confirmation of Minutes.—The minutes of the previous meeting were read and confirmed.

Balance Sheet.—The balance sheet was adopted.

Next Annual Meeting.—It was decided to hold the next annual meeting at Cambridge.

Election of Office-bearers.—Mr. Deighton was elected President-elect. Mr. Morris, of Bishop's Stortford, was elected Representative of the Branch at the Representative Meeting. Mr. Apthorpe Webb was declared a member of the Central Council to represent this Branch and the East Yorkshire Branch. The following were elected members of the Branch Council: Dr. Giles, Dr. Fordyce, Dr. Griffiths.

Luncheon.—Following the business meeting members and friends to the number of 36 lunched together at the invitation of the President. The President gave the toast of "The King," after which he proposed the health of the out-going President, Dr. Humphry. Dr. Humphry suitably replied, and proposed "The President," thanking him for his hospitality.

Papers.—The following papers were then read at the Infirmary, after which those present partook of tea at the kind invitation of Dr. T. Walker, of Peterborough:

Dr. T. WALKER: After-history of cases shown before the Association at Peterborough in 1893. Dr. KIRKWOOD: (1) Cases of hereditary aniridia; (2) Photograph with short notes of a case of congenital anophthalmos; (3) Case of malformation of both external ears with absence of bony meatus; (4) Cases of talipes equino-varus treated by astragalectomy. Mr. ARTHUR COOKE, F.R.C.S.: The treatment of migraine by optical methods. Dr. LAURENCE HUMPHRY: A severe case of lead encephaly in a woman caused by taking "pills." Dr. T. WALKER: A case of strangulation of the intestine by true knotting of Meckel's diverticulum.

DORSET AND WEST HANTS BRANCH:
WEST DORSET DIVISION.

A MEETING was held at the County Hospital, Dorchester, on Wednesday, June 13th, at 3 p.m.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Election of Officers.—The following officers were elected: *Chairman*, P. W. MacDonald, M.D. (Dorchester); *Vice-Chairman*, J. F. L. Whittingdale, M.B. (Sherborne); *Honorary Secretary*, J. Comyns Leach, M.D. (Sturminster Newton); *Representative for Representative Meeting*, J. Comyns Leach, M.D. (Sturminster Newton); *Representatives on Branch Council*, D. Curme, W. E. Good, J. Comyns Leach, M.D., J. F. L. Whittingdale, M.B., P. W. MacDonald, M.D.; *Executive Committee*, W. G. Alexander, M.B., T. W. W. Bovey, D. Curme, G. J. W. Flower, W. E. Good, P. J. Kingston, J. Comyns Leach, M.D., W. Rendall, J. F. L. Whittingdale, M.B., T. H. E. Watts-Silvester.

Annual Meeting.—It was decided to hold the annual meeting of the Division in future in May instead of June, and at least a week before the annual meeting of the Branch.

Proposed Royal Charter.—The proposal to apply for a Royal Charter was discussed, and it was unanimously resolved to support that application.

EDINBURGH BRANCH:
SOUTH-EASTERN COUNTIES DIVISION.

THE annual meeting of this Division was held in the King's Arms Hotel, Melrose, on the afternoon of Friday, June 22nd, at 3 o'clock, Dr. CULLEN, Chairman, presiding.

Confirmation of Minutes.—The minutes of the spring meeting were read, approved, and signed by the Chairman.

Election of Officers.—The office-bearers for next year were elected as follows:—*Chairman:* Dr. Young (Earlston). *Vice-Chairman:* Dr. Bannerman (Hawick). *Honorary Secretary and Treasurer:* Dr. Calvert. *Representative at Representative Meetings:* Dr. Blair (Jedburgh). *Representative on the Branch Council:* Dr. Carlyle Johnstone. *Executive Committee:* Drs. Barrie, Dixon, Henderson (re-elected); Drs. Jeffrey, Cullen, Fleming (elected).

Annual Representative Meeting.—The agenda of the Annual Representative Meeting, to be held on July 24th and the following days, were read, and the members present instructed the Representative as to how he was to vote on the various matters coming up for discussion. He was specially instructed to vote against the appointment of all committees which would necessitate the services of a salaried officer, and in every way to curtail the expenditure of the Association.

The Expenditure of the Association.—Dr. HAMILTON then moved:

> That some measures should be adopted in order to curtail the increasing expenditure of the Association, and unanimously approve of the memorandum issued by the Lancashire and Cheshire Branch, and of Dr. T. Arthur Helme's endeavours to put the Association on a sound financial basis.

This was unanimously agreed to.

Autumn Meeting.—It was decided to hold the autumn meeting in Galashiels in September and to consider then the arrangements for the annual dinner in October.

GLASGOW AND WEST OF SCOTLAND BRANCH:
GLASGOW NORTH-WESTERN DIVISION.

THE annual meeting of this Division was held in the Hillhead Burgh Hall, 348, Byres Road, Glasgow, on May 30th. Dr. W. A. CASKIE (Chairman) presided.

Confirmation of Minutes.—The minutes of the last meeting were read and approved.

Drs. Carswell and Gilchrist.—Dr. MCGREGOR ROBERTSON read the statement of Committee appointed to consider the circumstances under which the action for damages was raised against Drs. Carswell and Gilchrist.—Dr. J. S. MUIR moved that the statement be adopted.—This was agreed to unanimously.—A discussion took place as to what further action should be taken.—After a division the amendment of Dr. McGregor Robertson was carried, and became the finding of the Division:

> That the statement be sent to the Glasgow and West of Scotland Branch, with the request that they advise the Division as to further steps in the direction suggested in the statement.

Election of Officers.—The following were elected office-bearers and members of the Executive Committee:—*Chairman:* Dr. Donald J. Mackintosh; *Vice-Chairman:* Dr. J. Galbraith Connal; *Secretary:* Dr. Henry Whitehouse; *Representatives to Branch Council:* Drs. Mackintosh and Whitehouse; *Representative for Annual Representative Meeting:* Dr. W. A. Caskie; *Members of the Executive Committee:* Drs. J. Baird, G. Burnside Buchanan, J. Donald, J. C. Edmiston, A. G. Hay, John Morton, and J. S. Muir.

Reports from Secretary.—Reports from the Secretary as to two meetings of the Executive; the first dealt with the questions submitted to members of Parliament, and he reported that no reply had been given by Mr. Robert Balfour, the returned member. There were four ordinary meetings, and three meetings of the Subcommittee on Drs. Carswell and Gilchrist's case.

Provisional Agenda.—The agenda was briefly considered. It was agreed to give a free hand to the Representative.

LANCASHIRE AND CHESHIRE BRANCH:
LIVERPOOL WESTERN DIVISION.

THE annual meeting of this Division was held on May 22nd at the Medical Institution, Mr. F. C. LARKIN in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Report of Executive Committee.—The annual report of the Executive Committee was then read and confirmed, giving the following account of the work of the Division in 1905, namely:—During the year 1905 various Bills and memoranda sent from the Central Council were considered, namely—the Draft Public Health Bill; the Death Registration and Coroner's Law; the Public Health Bill; the Revaccination Bill; the Reorganization of the Local Government Board in the Interest of Public Health; the Midwives Act; Incipient Insanity; Habitual Inebriety and Drug Habits; Poor-law Medical Officers in Scotland and Ireland; Medical Inspection of School Children; Pension for Asylum Workers; Security of Tenure for Public Vaccinators. At the forthcoming Parliamentary election a joint committee consisting of the secretaries of the five Divisions, under the chairmanship of Sir James Barr, decided at the suggestion of the Central Council to send various questions to the candidates for the divisional areas, and to register their answers. Owing to the scanty attendance at the meetings of all the Liverpool Divisions, it was resolved to hold a joint meeting in the form of a dinner. The Medical Secretary, Mr. Smith Whitaker, was invited to deliver an address on medical organization. This meeting was held on March 22nd, and was attended by fifty members.

Financial Report.—The financial report for the year was read and adopted.

Election of Officers.—The following were elected officers for the ensuing year:—*Chairman*, Mr. F. C. Larkin; *Secretary*, Dr. Karl Grossmann; *Other Members of the Executive Committee*, Sir James Barr, Drs. Allen, Hay, and Howard; *Representatives on Branch Council*, Mr. F. C. Larkin and Dr. Grossmann; *Representative for Representative Meeting*, Dr. Grossmann.

Annual Representative Meeting.—The provisional agenda for the Representative Meeting were then considered to No. 43, and the Representative instructed how to vote.

Adjournment.—The meeting then adjourned till May 29th.

Adjourned Meeting.—At the adjourned meeting held at the Medical Institution on May 29th at 4.30 p.m., Mr. LARKIN in the chair, the remaining portion of the provisional

agenda for the Representative Meeting was considered and the Representative instructed how to vote.

Stockport, Macclesfield and East Cheshire Division.

The annual meeting was held at the Macclesfield Infirmary on June 29th, Dr. A. Godson, President, in the chair.

Minutes.—The minutes of the last annual meeting were taken as read.

Report of Committee.—The annual report of the Executive Committee was presented, adopted, and ordered to be entered on the minutes. It contained the following expression of opinion on the financial condition of the Association: (1) That if all unnecessary expenditure is curtailed, and especially the publication of the *Year Book*, the financial position of the Association need occasion no alarm. (2) That the expenditure on organization, and especially in the department of the Medical Secretary is necessary and essential, and will be fully repaid by the material benefits resulting therefrom in the future to the profession generally. (3) That the chief source of financial anxiety arises from the policy of certain Divisions and of the Representative Meeting of instituting schemes and innovations entailing expenditure. This Committee therefore advocates the appointment of some finance committee to specially report on the probable cost of all new proposals before any action is taken.

Election of Officers.—The following were elected as officers for the ensuing year:—*President*, Dr. A. Godson: *Vice-President*, Dr. J. Somerville; *Representatives on Branch Council*, Drs. James B. Hughes and E. Rayner; *Honorary Secretary*, Mr. B. W. Housman; *Committee*, Drs. C. Averill, R. Proudfoot, E. J. Carruthers, and E. A. Goulding; *Representative at Annual Meeting*, Mr. B. W. Housman.

MIDLAND BRANCH.

The annual meeting of the Midland Branch was held at the County Hospital, Lincoln, on June 7th, the President, E. Mansell Sympson, M.D., in the chair.

Election of Officers.—The following were elected officers of the Branch for the ensuing year: *President-elect*, G. Lorrimer, M.D. (Buxton); *Vice-Presidents of the Branch*, Dr. Farrer, Dr. G. W. Shipman, Dr. Tibbles; *Members of Branch Council*, Drs. Wilson, Cassidi, Chawner, Moxon, St. John, Burkitt, Blakesley, Clarke, Gibbons, Lewitt, Broadbent, Harrison; *Representatives on Council of the Association*, W. A. Carline, M.D. (Lincoln), F. M. Pope, M.D. (Leicester); *Honorary Secretary of the Branch*, Dr. Sevestre, 119, London Road, Leicester.

Vote of Thanks.—A vote of thanks to the officers of the Branch for the past year was carried. Dr. Pope replied.

Proposed Merging of Divisions.—It was proposed and carried:

> That a recommendation be sent to the Organization Committee that the Boston and Spalding Division be merged into that of Lincoln, and that the Stamford Division, including Rutlandshire, should be merged into that of Leicester.

President's Address.—The President, Dr. E. Mansell Sympson, delivered the Presidential address, giving an interesting account of the life and accomplishments of Dr. Caius.—After a cordial vote of thanks to the President the meeting terminated.

SOUTH-EASTERN BRANCH:

Chichester and Worthing Division.

The annual meeting of this Division was held at the Infirmary, Chichester, on June 20th, Dr. Hinds presiding.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Next Meeting.—It was decided to hold the autumn meeting at Worthing.

Election of Officers.—The following officers were elected for the year:—*Chairman*, Mr. W. S. Simpson (Worthing); *Vice-Chairman*, Mr. E. H. Buckell (Chichester); *Honorary Secretary*, Dr. H. C. L. Morris (Bognor); *Representative*, Dr. Hinds (Worthing); *Representative on Branch Council*, Mr. Elliot Blake (Bognor); *Executive Committee*, Dr. Cameron (Worthing), Dr. Hinds (Worthing), Dr. Eustace (Arundel), Dr. Ewart (Chichester), Mr. Elliot Blake (Bognor).

Proposed Royal Charter.—The proposed application for a Royal Charter was discussed, and a resolution approving of the same was passed.

Proposed Medico-Political Committee.—A resolution was passed in favour of the formation of a Committee for the purpose of dealing with medico-political matters, subject to the consent of the Branch Council.

Cases.—After the meeting Dr. Ewart showed some interesting cases in the wards.

Eastbourne Division.

The annual general meeting for 1906 was held at the Grand Hotel, Eastbourne, on Thursday, May 24th, at 6.30 p.m., Dr. Adams presiding.

Confirmation of Minutes.—The minutes of the last annual general meeting were read and confirmed.

Election of Officers.—The following officers were elected for the ensuing year: *Chairman*, Dr. J. Adams; *Vice-Chairman*, Mr. C. O'Brien Harding; *Honorary Secretary*, Dr. William Muir Smith; *Representative on Branch Council*, Mr. J. H. Ewart; *Representative at Representative Meeting*, Dr. William Muir Smith (jointly with Hastings Division); *Executive Committee*, Mr. J. H. Ewart, Dr. H. S. Gabbett, Dr. C. H. Hayman, Dr. W. J. C. Merry, and Dr. A. P. Sherwood.

Vote of Thanks.—On the proposition of Mr. J. H. Ewart, seconded by Mr. C. O'Brien Harding, a hearty vote of thanks was unanimously passed to the retiring Honorary Secretary for his untiring services during the past six years. Dr. Merry suitably replied.

Dinner.—At 7.15 eighteen members sat down to dinner. After dinner the Chairman proposed the toast of "The King," which was loyally honoured. Dr. Marsdin proposed the health of the Chairman, who responded in suitable terms. Mr. J. H. Ewart having alluded in eulogistic terms to the valuable services of the retiring Secretary, and Dr. Merry having gracefully acknowledged the compliment, the members thereafter retired to the library for tobacco and conversation.

Guildford Division.

The annual meeting of this Division was held at the Royal Surrey County Hospital, Guildford, on Wednesday, June 20th, at 4.30 p.m., Dr. A. Hope Walker, Vice-Chairman of the Division, being in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Election of Officers.—The following gentlemen were elected for the ensuing year: *Chairman*, Dr. George Fisher; *Vice-Chairman*, Dr. A. Hope Walker (re-elected); *Honorary Secretary and Treasurer*, Dr. E. J. Smyth (re-elected); *Representative for Representative Meetings*, Mr. G. Sichel; *Representative on Branch Council*, Dr. E. J. Smyth (re-elected); *Executive Committee*, Drs. Hudson, Kendall, Kingsford, Levick, Minchin, Morshead, Napper, Pearse, Sloman, Weaver, and Winstanley.

Annual Report.—The annual report and financial statement were submitted and adopted.

Annual Representative Meeting.—The agenda paper of the Annual Representative Meeting was laid before the meeting, but no discussion took place in regard to its contents.

Paper.—Mr. G. Sichel, F.R.C.S., read a paper entitled, Some Remarks on Radiotherapy, reviewing the present condition of our knowledge and the scope of the various forms of light treatment, namely, x rays, Finsen light, and radium, and made some reference also to the use of high-frequency currents. A discussion followed, and questions were asked by several members.

Cases, Specimens, etc.—Sections (macroscopic and microscopic) of an eye removed for sarcoma of the choroid were shown by Dr. E. J. Smyth, and short notes of the case were read.—Dr. Pearse gave a short account of the case of a young woman who had been under his care with obscure abdominal symptoms, from whose stomach a large hair-cast was removed in St. Thomas's Hospital.

Next Meeting.—It was agreed that the next meeting should be held in October, should be mainly clinical in its character, and should be followed by a dinner.

Votes of Thanks.—The meeting closed with votes of thanks to Mr. Sichel for his paper; to the Vice-Chairman

for acting as chairman during the past year; and to the Committee of the hospital for the use of the Board-room, and for kindly providing tea.

NORWOOD DIVISION.

THE annual meeting of the Division was held at the Art Club, Blackheath, on June 14th, at 4 p.m., Dr. GOODING, of Blackheath, in the chair.

Confirmation of Minutes.—The minutes of the last meeting were read and confirmed.

Next Meeting.—It was proposed by Dr. BURGESS, and seconded by Dr. HOWARD, that the next meeting be held at Streatham in October or November, and that Dr. Steedman be invited to take the chair. This was carried *nem. con.*

Election of Officers.—The officers of the Division were then elected as follows: *Chairman*, Mr. H. C. Burton; *Vice-Chairman*, Mr. H. J. Prangley; *Representative at Representative Meetings*, Mr. J. Rand; *Representatives on Branch Council*, Dr. Hetley, Mr. Prangley; *Honorary Secretary*, Mr. A. W. Soper; *Executive Committee*, Dr. Annis, Dr. Bailey, Dr. Stewart, Dr. Burgess.

Report of Executive Committee.—The following report was then read: Your Executive Committee beg to report that during the year scientific meetings have been held at Blackheath, Streatham, and Norwood, each being followed by a dinner; clinical meetings at the Home and Infirmary for Sick Children, Sydenham, Norwood Cottage Hospital, Seamen's Hospital, and St. John's Hospital, and a special meeting at Norwood to discuss the Royal Charter. The attendances have only been fair, and the Committee would like to hear from members their wishes as to the number of meetings to be held during the ensuing year.

Papers.—The following papers were then read: Dr. C. R. BOX, Bronchiectasis in Children; Mr. W. ARBUTHNOT LANE, Defective Intestinal Drainage; Dr. WALTER W. H. TATE, Indications for the Surgical Treatment of Uterine Fibroids.

Dinner.—After the meeting eighteen members dined together.

SOUTHERN BRANCH:
PORTSMOUTH DIVISION.

THE adjourned annual meeting of this Division was held at 130, Commercial Road, Portsmouth, on June 13th.

Election of Officers.—The following officers were elected for the ensuing year: *Chairman*, Dr. B. H. Mumby; *Vice-Chairman*, Dr. C. P. Ruel; *Executive Committee*, Drs. J. Kyffin, S. Norman, J. A. Dove, J. Blackwood, C. Routh, W. Carling, J. L. Wright, M. Way, R. Emmett, and L. Maybury; *Representatives of the Division on the Branch Council*, Drs. C. C. Claremont, J. Green, and S. G. Blackman; *Representative in Representative Meetings of the Association*, Dr. J. Ward Cousins; *Secretary* (*pro tem.*), Mr. C. P. Childe.

SOUTH-WESTERN BRANCH.

THE sixty-seventh annual meeting was held at the Royal Devon and Exeter Hospital on June 14th. Mr. GEORGE JACKSON, President of the Branch, occupied the chair.

Letters.—Letters of apology for non-attendance from Dr. Gordon and Dr. Thom were reported.

Confirmation of Minutes.—The minutes of the last annual meeting were read and confirmed.

Installation of New President.—The PRESIDENT then resigned the chair to the new President, Mr. E. J. DOMVILLE.

Vote of Thanks to Retiring President.—A vote of thanks to the outgoing President for his services during his year of office was carried by acclamation.

President's Address.—The PRESIDENT then delivered his inaugural address on reminiscences of surgery during the past thirty-six years, and a vote of thanks to him for the same was carried unanimously.

Report of Council and Financial Statement.—The report of the Branch Council and the annual financial statement were then read and adopted.

Election of Office-bearers.—The election of Mr. E. J. Domville and Dr. E. L. Fox as representatives of the Division on the Central Council was reported and confirmed. Mr. Russell Coombe was elected Honorary Secretary and Treasurer.

Vote of Thanks to Retiring Honorary Secretary.—A cordial vote of thanks to Mr. G. Young Eales (who did not seek re-election) for his services to the Branch as Honorary Secretary and Treasurer for the past five years was carried by acclamation and he was unanimously elected, as a past secretary, an *ex-officio* member of the Branch Council.

Luncheon.—Prior to the meeting the President-elect entertained the members of the Branch at luncheon.

Garden Party.—In the afternoon the members of the Exeter Division gave a garden party in the Palace Garden (kindly lent by the Bishop of Exeter) and croquet and golf were arranged for those wishing to play.

Annual Dinner.—The annual dinner of the Branch was held in the evening and was well attended.

WEST SOMERSET BRANCH.

THE sixty-fourth annual meeting of this Branch was held at the London Hotel, Taunton, on Friday, June 22nd. The chair was taken by the new PRESIDENT, Dr. R. Liddon Meade-King.

Confirmation of Minutes.—The minutes of the last meeting were read and signed.

Report and Balance Sheet.—The HONORARY SECRETARY read the sixty-third annual report and presented the balance sheet, which showed a balance in hand of £34 10s. 2d. These, on the proposition of Mr. RIGDEN, seconded by Mr. C. RANDOLPH, were adopted.

Election of Officers.—The following officers were elected: *President-elect*, Dr. G. W. H. Bird, of Bridgwater; *Representative*, Dr. J. A. Macdonald; *Honorary Secretary and Treasurer*, Mr. W. B. Winckworth. *Council:* This was re-elected, with the addition of Mr. R. W. H. Meredith in place of Mr. A. W. Sinclair, whose term of office had expired.

Ethical Committee.—The Council of the Branch was elected the Ethical Committee of the Branch.

President's Address.—The PRESIDENT read a paper on Notes from a Seventeenth Century Textbook of Medicine, after which, on the proposal of Dr. MACDONALD, seconded by Mr. J. BRICE BUNNY, a hearty vote of thanks was accorded to Dr. MEADE-KING for his exceptionally interesting and entertaining address.

Annual Representative Meeting.—The meeting proceeded to consider the agenda for the Annual Representative Meeting, but before much progress had been made it was proposed by Dr. H. T. RUTHERFOORD, and seconded by Mr. RIGDEN that as Dr. Macdonald possessed the confidence of the Branch he should be left free to vote according to his convictions. This, having the approval of the meeting, terminated the business before the Branch.

Luncheon and Golf Match.—Lunch was served at the London Hotel, and after lunch those present were driven to the Pickeridge golf links, where a match was played between the medical members of the Pickeridge Club and the rest of the Branch; they were also entertained to tea by the President, and spent a most enjoyable afternoon.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH:
WORCESTER DIVISION.

THE annual meeting was held at the Worcester Infirmary, on Monday, June 18th.

Confirmation of Minutes.—The minutes of the last annual meeting were read and passed.

Election of Officers.—Dr. East was elected *Chairman* for the ensuing year (proposed by Dr. CROWE, seconded by Mr. HOLBECHE.) Dr. Shirley Jones was elected *Vice-Chairman* (Mr. HOLBECHE proposed, Dr. DIXEY seconded). *Honorary Secretary*: Dr. CHARSLEY proposed and Mr. GOSTLING seconded that Dr. Watson be invited to act as Honorary Secretary of the Division. Carried. *Executive Committee*: Dr. READ proposed, and Mr. HOLBECHE seconded that the Executive Committee be re-elected with the addition of the name of Dr. Crowe. Carried. *Representative:* At the Representative Meeting of the Association Dr. CROWE proposed, and Mr. GOSTLING seconded, that Dr. Dixey be re-elected. Carried.

Report of Representative at last Annual Representative Meeting.—Dr. DIXEY accepted, and gave an account of his experience at the last Annual Representative Meeting.

Hospitals Out-patient Department.—This was discussed, and it was proposed by Mr. Cowan and seconded by Colonel Baird:

That this meeting approves of the question submitted to the Divisions for their consideration—namely, that there should be no out-patient departments in hospitals except for consultations and casualties, and that this opinion specially applies to hospitals whose staff are general practitioners.

Whereupon the following amendment was proposed by Dr. Crowe and seconded by Mr. Gostling and carried (11 for, 2 against):

That the question submitted is not practicable at the present time.

Proposed Royal Charter.—Dr. Crowe proposed and Dr. Horton seconded:

That this Division approves of the application of the Association for a Royal Charter.

This was carried unanimously.

Ethical Rules.—Dr. Read proposed and Dr. Charsley seconded:

That this matter be deferred until the next meeting, and that a copy of the draft Model Rules for Divisions be sent with the notices summoning the meeting.

Carried unanimously.

Vote of Thanks to Dr. Crowe.—Dr. Dixey proposed and Dr. East seconded the following resolution:

That this meeting accepts with much regret the decision of Dr. Crowe not to seek re-election as Honorary Secretary, and desires to place on record its appreciation of the invaluable services he has rendered to the Association, and to accord to him on behalf of the Division its sincere thanks for the work he has so well done for so many years.

The motion was carried unanimously.

YORKSHIRE BRANCH.

The annual meeting was held at the Bradford Eye and Ear Hospital on Wednesday, June 13th; Dr. Black, President, in the chair. The minutes of the last meeting were read and adopted.

Election of Officers.—Dr. Mossop, President-elect, was elected President, and took the chair. It was decided to hold the next annual meeting at Dewsbury, and Dr. Lee was made President-elect. Dr. Goyder (Bradford) and Dr. Sinclair White (Sheffield) were elected Representatives on the Central Council. Dr. Bronner was re-elected Secretary and Treasurer.

Annual Report.—The following report of the Council for 1905 was read: During the year three meetings have been held, at Bradford, Harrogate, and Scarborough (a meeting of the Council only was held at Leeds in March), at which there has been an average attendance of about 40 members. At the annual meeting held at Harrogate, Dr. Black was elected President, and Dr. Mossop (Bradford) President-elect. Twenty-eight new members have been elected, and 11 added through change of address; 27 have been lost through death and resignation, and 18 through change of address, so that there has been a net loss of 6 members. The membership on December 31st, 1905, was 770. Capitation grants of 3s. per head have been made to the Bradford, York, and Scarborough Divisions. The expenses of the Leeds, Sheffield, Huddersfield, and Harrogate Divisions have been paid according to accounts sent in by the Secretaries. No expenses have been incurred by the Wakefield and Doncaster and Halifax Divisions. We began the year with a balance in hand of £149 4s. 3d., received from London £147 18s., bank interest £2 9s. 3d. The expenses of the various Divisions have been £58 8s. 6d., and of the Branch £19 7s., leaving a balance in hand of £211 16s. At the request of a number of medical men in the Richmond Division they have left the Yorkshire Branch, and have joined the Darlington Division of the North of England Branch. The Committee of the Wakefield and Doncaster Division decided, at their annual meeting last June, not to elect officers or to call any more meetings, owing to the apathy of the members of the Division. This was represented to the Medical Secretary of the Association, and arrangements were made for him to address a meeting of the Division and also to visit the Huddersfield, Halifax, and Sheffield Divisions. At the June meeting of the Council the following alteration of Rule 5 was proposed:

That no Division shall be entitled to more than one representative on the Central Council, and that no cumulative voting be allowed.

The Central Council, on receiving notice of this alteration, have taken legal opinion on the matter, and have sent to the Branch Council the following resolution:

That the Council do not approve the proposed new rule of the Yorkshire Branch with reference to the election of Representatives of the Branch on the Central Council.

The reason given being that it is not in the power of any Division to alter or modify the existing rules of the organization.

Grant to Division.—It was proposed and carried that a grant of £150 from the funds of the Branch be given to the Bradford Division should the annual meeting of the Association be held in Bradford in 1907.

Vote of Thanks to Dr. Black.—On the proposition of Dr. Major, seconded by Dr. Dolan, a vote of thanks was passed to Dr. Black, and he was elected a permanent Vice-President of the Branch.

President's Address.—Dr. Mossop read a most interesting address on "The Out-Patient Departments of Hospitals and their Abuse."

Papers and Cases.—Mr. Basil Hall showed a case of excision of the Gasserian ganglion, carcinoma of caecum removed by operation, carcinoma of transverse colon removed by operation, carcinoma of sigmoid removed by operation, intussusception removed by operation. Mr. Solly read a note on a case of rupture of the liver, operation, recovery. Dr. Bain read a paper on "A Further Experimental Contribution to the Treatment of Cholecystitis." Dr. Bronner showed cases of extradural abscess, cerebellar abscess, thrombosis of cavernous sinus, Moure's operation for deviation of the nasal septum, and Killian's operation for frontal sinus disease; also a number of recent mastoid cases, showing how quickly most cases heal without skin grafting. Dr. Little read a paper on Parinaud's conjunctivitis, with notes on a case; Dr. Tregelles Fox on "Plea for the Habitual Performance of Necropsies in General Practice"; and Dr. Ray on a case of obstructed labour due to pelvic neoplasm (with specimen).

Annual Dinner.—After the meeting about twenty-five members dined at the Midland Hotel.

Bradford Division.

The annual meeting of this Division was held at the Eye and Ear Hospital, Bradford, on Tuesday, June 12th, at 8.30 p.m. Dr. Mitchell (Chairman) presided.

Confirmation of Minutes.—The minutes of the last meeting were read and adopted.

Election of Officers.—The following officers were elected for the ensuing year: *Chairman*, Mr. Basil Hall; *Vice-Chairman*, Dr. H. J. Campbell; *Honorary Secretaries*, Drs. J. Metcalfe and A. Little (*Treasurer*); *Representatives on the Branch Council*, Drs. Bampton, Campbell, Hall, and Little; *Executive Committee*, Drs. and Messrs. Althorp, Berry (Keighley), Bronner, Clow, Craig (Bingley), Crowley, Eames, Goyder, Hunter (Pudsey), Mercer, Mitchell, Mossop, Oliver, Peck (Queensbury), Shaw (Liversedge), Sykes (Cleckheaton), Tunstall, Waugh (Skipton). *Ethical Committee*, the President and Secretaries and Drs. and Messrs. Althorp, Horrocks, Manknell, H. E. Taylor, Shackleton, J. W. Willson. Mr. Horrocks was re-elected as the *Representative of the Division in Representative Meetings of the Association.*

Report of Executive Committee.—Dr. Metcalfe then read the following report of the Executive Committee, which was unanimously adopted: Your Committee has much pleasure in submitting its third annual report on the work of the Bradford Division. A great deal has been done, a large number of questions have been considered, and it is a source of much satisfaction that a considerable amount of work has been accomplished in promoting scientific effort and the interests and honour of the medical profession. And it may be emphasized that it is no euphemism to characterize the interests and honour of the medical profession as identical with those of the general public. Sometimes a gentleman suggests at a meeting with trepidation that we ought to consider our own interests in approaching a subject, and occasionally he dissembles, on the attack of a fellow member apparently more austere and disinterested than himself; but let us have

no hypocrisy! We cannot forget that although we are all actuated by altruistic motives, incidentally it is necessary that we should live and keep our families in material comfort; and of this we should not be ashamed. Self-preservation is the first law of Nature, and no body of men can afford to forget it. But details are required. What has the Bradford Division done during this its third year of effort to justify its existence? Your Committee desires to admit its shortcomings, but to emphasize its good intentions. It must not be forgotten that the local body is an integral part of a great organization having its ramifications in almost every part of the habitable globe. Questions of policy apply to the whole Association; local requirements are limited to only a small area. But the Division has to consider questions from all quarters; and this in itself accounts for a great deal of the vast amount of work which the members have to discuss and give their decisions on. Altogether during the past year five meetings of the Division have been held at the Eye and Ear Hospital. Two more meetings have been held conjointly with the Medico-Chirurgical Society at the Bradford Royal Infirmary, and the Division has twice called the whole of the profession together at meetings held at the Victoria Hotel. It will thus be seen that the Division has inaugurated no less than nine general meetings during the past year. The Executive Committee has met nine times during the year, the Ethical Committee once. In addition to these meetings one subcommittee interviewed the Health Committee of the Bradford Corporation, and another interviewed the Mayor and Town Clerk in reference to the proposed meeting of the Association in Bradford in 1907. Two meetings of a special committee in connexion with contract club practice have taken place, and one subcommittee meeting was held to arrange the annual social event. The whist drive, supper and dance was another meeting which brought nearly eighty members of our profession and their wives together. It can be readily understood that the organization and recording of twenty-five meetings of one sort or another has been no light task, and this your Committee feels sure the members of the Division will appreciate. But the work will not be in vain if the dignity and emoluments of our profession and the interests of the public are commensurately advanced. Your Committee would like to specially draw attention to the invaluable work done by the subcommittees in connexion with the late Parliamentary elections. Nearly every candidate in the Bradford Division was interviewed by members of the subcommittees in connexion with numerous questions affecting the medical profession forwarded from the Central Body. The value of this educative force on Parliamentary candidates was enormous; and your Committee has no doubt that the efforts made will bear fruit at some not very remote date. During the past year a nucleus of a library for the Division has been obtained from the central library of the Association. Most of the books are old, but some are valuable, and as time goes on no doubt additions will be made to their numbers. As a temporary measure, the books have been lodged at the chambers of Mr. Basil Hall, Vice-President, where they may be seen at any time by members, but it is hoped that before long they may find a resting place in rooms belonging to the Division. Your Committee would wish to impress on every member of the Division the necessity for increasing its membership. Unity is strength, and we can act much more energetically if we have behind us a united profession. Every member should make an endeavour during the coming year to bring a new member into the Association. The present membership is 155, but it ought to be quite 100 greater than this number. The deputation appointed by the Division at its last meeting to interview the Council and invite the Association to hold its annual general meeting in Bradford in 1907 will go to London in July, and hopes to be successful. If it is, your Committee trusts that every member of the Bradford Division will make an especial effort to make that meeting a success. There is no doubt that a meeting of the Association in this city would be a means of stimulating the activity of our members generally to their own and the Association's advantage; and it ought to be a means of inducing a great influx of new members. Your Committee is glad to be able to state that the financial position of the Division is in a sound condition. The Yorkshire Branch has again allocated a grant of 3s. per member for the Divisional expenses. Your Treasurer will shortly lay a detailed account of the assets and expenditure of the Division before you. Your Committee cannot conclude its report without referring to the great courtesy and ability which the Chairman (Dr. Mitchell) has always shown in presiding over the Divisional meetings.

Balance Sheet of the Treasurer for the Year ending 1905-6.

CR.	£	s.	d.	DR.	£	s	d.
Balance from 1904	6	9	4	January 2nd, postages ...	0	6	0
Cheque from the Branch	25	4	0	January 27th, Field and Sons	5	4	6
May 22nd, 1906, cheque from Dr. Parkinson ...	15	1	0	May 17th, Field and Sons	3	14	0
				May 17th, stamps	1	0	0
				July 15th, Field and Sons	4	0	0
				July 14th, Great Northern H. ... ... 1906.	0	3	6
				January 17th, books (B. H.)	1	1	0
				March 2nd, Field and Sons	12	13	6
				April 30th, Victoria H. ...	0	7	0
				June 1st, Dr. Metcalfe (Secretary's expenses) ...	1	0	0
					29	9	6
				Balance	17	4	10
	46	14	4		46	14	4

Nomination for Annual Meeting of Association, 1907.—The nomination and election of a proposed President-elect of the Association, if the invitation to the Council to hold the Annual General Meeting in Bradford in 1907 were accepted, then took place. Dr. HIME proposed Dr. J. H. Bell, but Dr. Bell did not see his way to accept the nomination. Dr. METCALFE proposed and Dr. EURICH seconded that Dr. H. J. Campbell should be nominated as President-elect. Dr. GOYDER proposed and Dr. HODGINS BROWN seconded the nomination of Dr. A. Bronner. The names were then balloted for, Dr. Campbell receiving the greatest number of votes. Dr. Campbell's name was then submitted to the meeting and received a unanimous vote. Dr. CAMPBELL returned thanks for the confidence reposed in him and promised if he were elected to do everything in his power to make the meeting in Bradford a great success.

Bradford Baths.—Dr. METCALFE then moved the following resolution:

> That the Bradford Division of the British Medical Association, whilst noting with satisfaction the decision of the Baths Committee of the Bradford Corporation that the various forms of medicinal bath treatment should only be carried out from medical prescription, trusts that it will be an order to the bath attendants to carefully fulfil the instructions given; and respectfully suggests to the Committee the desirability of limiting the electrical appliances for the treatment of disease strictly to the methods at present undertaken at the Central Baths.

Dr. Metcalfe drew attention to certain therapeutic measures adopted at the Bradford Baths which were to be deprecated. It was probable that the Baths Committee might before long be asked to add treatment by high-frequency currents to the other methods used. It had even been suggested that *x* rays and Finsen light treatment were legitimately within the scope of the work as carried on at the Central Baths. All these electrical therapeutic measures should remain absolutely in the hands of the medical profession. They had nothing whatever in common with water-bath treatment, and should never be used by bath attendants. He hoped that the Division would make a strong stand against these infringements of the prerogatives of the profession. It was suggested because these methods were only to be carried on through medical prescription that they might be legitimately adopted at the baths. This was no argument whatever. Bath attendants were not the class of people to carry out medical prescriptions. It was just as reasonable to ask medical men to write prescriptions for any other forms of medical treatment to be carried out by bath attendants as for these electrical methods, which were very dangerous in the hands of any other than qualified medical practitioners with the special knowledge required. Dr. EURICH seconded the resolution. Dr. HIME moved the following amendment:

> That in the opinion of this meeting it is highly undesirable that the City Council should carry on the treatment of disease for profit through officials at the Corporation Baths who are not legally qualified medical practitioners, who treat diseases which are not of an epidemic character;

that such practice is illegal, the Council having no powers authorising them to carry out such treatment; and that a copy of this resolution be forwarded to the Mayor, to the medical journals (*Lancet*, British Medical Journal, and *Medical Press and Circular*), and to the General Medical Council.

Dr. Mercer seconded. Dr. Hime quite sympathized with the tenor of the resolution, but he did not consider that it went far enough. He was strongly antagonistic to all forms of medical treatment carried on by bath attendants at the Central Baths. These forms of treatment were also illegal, as, without special powers, no corporation had the right to adopt them. Dr. Walker proposed another amendment, suggesting that the consideration of the matter should be adjourned. On being put to the vote, Dr. Hime's amendment was carried. Dr. Goyder proposed:

That a deputation, consisting of Drs. Hime, Hall, Little, Goyder, and Metcalfe, should interview the Baths Committee in connexion with the matter.

This was carried.

Proposed Royal Charter.—Dr. Goyder then proposed, and Dr. Metcalfe seconded:

That the Division approved of the application for a Charter for the Association.

This was carried *nem. con.* The meeting then terminated.

☞ *To ensure the insertion of notices in this column, they must be received at the Central Offices of the Association not later than the first post on Tuesday.*

Association Notices.

1906 ANNUAL GENERAL MEETING.

The Annual General Meeting of the British Medical Association will be held in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday July 24th at 10 o'clock in the forenoon.

ANNUAL REPRESENTATIVE MEETING.

The Annual Representative Meeting will take place in the Caxton Hall, Caxton Street, Victoria Street, London, S.W., on Tuesday, July 24th, immediately after the Annual General Meeting, which will be held at 10 o'clock in the forenoon; on Wednesday, July 25th, at 10 a.m.; on Thursday, July 26th, at 10 a.m. if required; also on Friday, July 27th, at 10 a.m. if required.

BY ORDER OF THE COUNCIL,
GUY ELLISTON, *General Secretary.*

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

Members are reminded that the Library and Writing Rooms of the Association are fitted up for the accommodation of the members in commodious apartments, at the office of the Association, 429, Strand. The rooms are open from 10 a.m. to 5 p.m., except on Saturdays, when they close at 2 p.m. Members can have their letters addressed to them at the office.

BRANCH AND DIVISION MEETINGS TO BE HELD.

North Wales Branch.—The fifty-seventh annual meeting will be held at the Grand Hotel, Llandudno, on Wednesday, July 11th, at 2 p.m. Annual dinner at 5.30 p.m. prompt; tickets, 5s. each. The Branch Council will meet at 1.45 p.m. Agenda: (1) To read the minutes of the last meeting; (2) to read correspondence; (3) to introduce the President-elect; (4) to receive the report of the Branch Council; (5) to receive the report of "The Jones Morris Memorial Fund" and the recommendations of the Branch Council thereon; (6) to elect President for 1907-8; (7) to elect Honorary Secretary; (8) to report the election of Representative of the Branch on the Central Council; (9) to select places for the intermediate and annual meetings for 1907. The President will deliver his address. The following papers will be read:—R. H. Mills-Roberts, C.M.G., F.R.C.S.Edin. (Llanberis): Injuries of the Foot. W. Duncan Lawrie, M.D., F.R.C.S.Edin. (Llandudno): Some Deformities. J. E. Gemmell, M.B. (Liverpool): Tubal Abortion. J. Elliott, M.D., M.R.C.P. (Chester): Cases of Pneumothorax, with remarks on the treatment of the affection. W. Thelwall Thomas, F.R.C.S. (Liverpool): Acute Pancreatitis, with description of two cases. Hugh E. Jones, M.R.C.S. (Liverpool): Three Tumours of the Nose and Accessory Spaces. J. Lloyd Roberts, M.D., M.R.C.P. (Liverpool): The Treatment of Obesity.—H. Jones Roberts, Honorary Secretary, Penygroes, Carnarvon.

Oxford and Reading Branch.—The annual meeting of this Branch will take place at the library of the Royal Berkshire Hospital, at 5 p.m., on Saturday, July 7th. Dr. W. Osler, F.R.S., Regius Professor of Medicine at Oxford, will give a lantern demonstration of the General Morphology of Abdominal Tumours. Dr. E. L. Bevers, Dr. Maliam, Mr. Arthur Roberts, the President (Mr. H. G. Armstrong), and probably others, will exhibit patients or specimens. The dinner will be held at the Queen's Hotel, Reading, at 7 p.m., when members have the privilege of bringing guests.—W. T. Freeman, 30, Portland Place, London Road, Reading, Honorary Secretary.

CENTRAL MIDWIVES BOARD.

A meeting of the Central Midwives Board was held on June 28th at Caxton House, Westminster, with Dr. F. H. Champneys in the chair.

Disinfection of the Clothing of Midwives.

A letter was read from the Local Government Board forwarding a copy of a communication from Dr. Park, M.O.H. Dukinfield, as to the disinfection of the clothing of midwives who have been in attendance on cases of puerperal fever. After some discussion the matter was referred to the Standing Committee.

Examining in Welsh.

A letter from Dr. Walford, M.O.H. Cardiff, as to examining in Welsh was considered, and it was decided that Dr. Walford be asked to state whether, in his opinion, the difficulty experienced by certain Welsh candidates in taking their examination in English would be met by the presence of an interpreter at the oral examination.

Midwives sending for Medical Help.

A letter from Dr. Gordon, Honorary Secretary, Salisbury Division, British Medical Association, enclosing copy of a resolution passed by the Division as to the form of the record of sending for medical help, prescribed by Rule E 19 (*b*), was considered. The Board decided that Dr. Gordon be informed that the Board has already forwarded to the Privy Council for its approval a draft revision of the rules, which in part met the objections raised to Rule E 19 (*b*).

Proposed Examinations in Dublin.

The Board decided in regard to the question of holding examinations in Dublin that the Privy Council be informed that the Board has carefully considered the Memorandum handed to the Lord President during a recent visit to Dublin urging the holding of the Board's examinations in Dublin. The Board are of opinion that it is not within the contemplation of the Act that any action should be taken by them outside the area defined by the Act, and that therefore they would be acting *ultra vires* in holding any examination except at centres in England and Wales. The Board would point out that the proposal to increase the examination fee above the present fee of 1 guinea if the examination were held in Ireland is contrary to Section V of the Midwives Act. The Board suggests that as it is now proposed to defray the expenses of an examination in Dublin by a special contribution, the difficulty might be met by those interested in the matter paying the travelling expenses of candidates to a centre in England.

June Examination.

The following report of the Secretary of the Board on the June examination was received:

Analysis of Training Schools.

Training School.	Total.	Passed.	Failed.	Percentage of Failures.
LONDON.				
British Lying-in Hospital	6	6	0	0.0
City of London Lying-in Hospital ...	6	6	0	0.0
Clapham Maternity Hospital	7	3	4	57.0
East End Mothers' Home	11	8	3	27.2
General Lying-in Hospital	22	21	1	5.0
Greenwich Union Infirmary	4	3	1	25.0
Guy's Trained Nurses' Institution ...	5	4	1	20.0
Kensington Union Infirmary	2	2	0	0.0
London Hospital	3	3	0	0.0
New Hospital for Women	1	1	0	0.0
Plaistow Maternity Charity	35	26	9	26.0
Poplar, "Regions Beyond"	3	3	0	0.0
Queen Charlotte's Lying-in Hospital ...	18	15	3	16.6
Salvation Army Maternity Hospital ...	3	2	1	33.3
ENGLAND.				
Aldershot Louise Margaret Hospital ...	3	3	0	0.0
Birkenhead Ladies' Charitable Institution and Maternity Hospital	2	2	0	0.0
Brighton and Hove Hospital for Women ...	10	8	2	20.0
Bristol General Hospital	3	3	0	0.0
Bristol Royal Infirmary	6	6	0	0.0
Chatham Military Families' Hospital ...	1	1	0	0.0
Cheltenham District Nursing Association ...	4	4	0	0.0
Chester Benevolent Institution	4	2	2	50.0
Croydon Union Infirmary	1	1	0	0.0
Derby Nursing Association	5	4	1	20.0
Essex County Cottage Nursing Society ...	5	3	2	40.0
Gloucester District Nursing Society ...	6	6	0	0.0
Hull Lying-in Charity	2	2	0	0.0
Ipswich Nurses' Home	3	2	1	33.3
Kingswood Cottage Nurses' Home ...	5	2	3	60.0
Liverpool Ladies' Charity and Lying-in Hospital	9	7	2	22.2
Liverpool Workhouse Hospital	7	7	0	0.0
Liverpool Walton Workhouse	4	2	2	50.0
Manchester Chorlton Union	1	0	1	100.0
Manchester St. Mary's Hospitals... ...	20	17	3	15.0
Newcastle Lying-in Hospitals	6	5	1	16.6
Portsmouth Military Families' Hospitals ...	1	1	0	0.0
Sheffield Jessop Hospital	5	3	2	40.0
Sheffield Union Hospital	2	1	1	50.0
West Ham Union Infirmary	3	3	0	0.0
WALES.				
Cardiff Q. V. J. N. Institute	4	1	3	75.0
Cardiff Union Infirmary	1	1	0	0.0
Newport and Monmouthshire Hospital ...	6	4	2	33.3
SCOTLAND.				
Dundee Maternity Hospital	3	3	0	0.0
Edinburgh Royal Maternity Hospital ...	6	5	1	16.6
Glasgow Eastern District Hospital ...	1	1	0	0.0
Glasgow Western District Hospital ...	2	2	0	0.0
Glasgow Maternity Hospital	7	7	0	0.0
IRELAND.	10	7	3	30.0
Belfast Union Maternity Hospital ...	5	3	2	40.0
Dublin Rotunda Hospital				
	289	232	57	19.7
Private Tuition.				
Baker, A. E.	1	1	0	0.0
Brice, H. D.	4	3	1	25.0
Calder, A. B.	14	11	3	21.4
Christie, W. L.	4	4	0	0.0
Daniels, E. C.	2	2	0	0.0
Evans, Evan	1	0	1	100.0
Fairbairn, J. S.	9	8	1	11.0
Fraser, H. P.	1	1	0	0.0
Griffith, G. de G.	2	2	0	0.0
Harcourt, G. R.	2	2	0	0.0
Howard, H.	2	2	0	0.0
Maclean, E. J.	5	2	3	60.0
Macphee, Angus	1	1	0	0.0
Miles, C. H.	1	0	1	100.0
Norton, E. C.	1	1	0	0.0
Pimley, T.	2	1	1	50.0
Price, G. B.	1	1	0	0.0
Rees, F.	5	2	3	60.0
Robinson, F. and L. Lilley	2	2	0	0.0
St. Aubyn-Farrer, C.	13	10	3	23.0
Slater, B. H.	5	4	1	20.0
Smith, A. Lionel	3	3	0	0.0
Thatcher, C. H.	1	1	0	0.0
Whitehouse, W. H.	2	2	0	0.0
Whitley, H. W.	1	1	0	0.0
Wingfield, H. E.	1	1	0	0.0
Worthington, R. T.	1	0	1	100.0
	87	68	19	21.8
Total	373	300	76	20.2

Naval and Military Appointments.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been made at the Admiralty: JAMES P. B. WILLIAMS, M.D., Deputy Inspector-General, to Chatham Hospital, temporary, June 28th; EVELYN R. TOWNSEND, Surgeon, to the *Sapphire*, July 3rd.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL W. T. JOHNSTON, M.D., retires on retired pay, July 4th. He was appointed Surgeon, August 5th, 1877; Surgeon-Major, August 5th, 1899; granted the rank of Lieutenant-Colonel, August 5th, 1897; and selected for increased pay, November 15th, 1899. According to *Hart's Army List*, he served in the Egyptian war in 1882 in medical charge of the 1st Battalion South Staffordshire Regiment and was present in the reconnaissance in force from Alexandria on August 5th (medal, and Khedive's bronze star); with the Bechuanaland Expedition in 1884-5; and with the Chin-Lushai Expedition in 1889-90 (medal with clasp).

ARMY MEDICAL RESERVE.

SURGEON-CAPTAIN J. S. MACKAY, M.D., to be Surgeon-Major, June 23rd. Surgeon-Lieutenant L. A. AVERY to be Surgeon-Captain, June 24th.

INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL G. H. BULL, M.D., Bombay Establishment, has been appointed to officiate as Principal Medical Officer, 4th (Quetta) Division, *vice* Colonel J. M'Cloghry, on leave.

Colonel P. H. BENSON, M.B., Madras Establishment, Principal Medical Officer, Bangalore and Southern Brigades, is granted the temporary rank of Surgeon-General while officiating as Surgeon-General with the Government of Madras, from April 30th.

MILITIA INFANTRY.

THE retirement of Surgeon-Lieutenant-Colonel T. CARTER, 4th Battalion, Alexandra, Princess of Wales's Own (Yorkshire Regiment), bears date May 14th, 1906, and not May 5th, as announced in the *London Gazette* of May 4th.

ROYAL GARRISON ARTILLERY (VOLUNTEERS).

SURGEON-MAJOR A. M. ARCHER, M.D., 1st Cheshire, is granted the honorary rank of Surgeon-Lieutenant-Colonel, June 29th. He resigns his commission from June 30th, retaining his rank and uniform.

VOLUNTEER RIFLES.

WILLIAM F. M'ALLISTER-HEWLINGS (formerly Captain) to be Surgeon-Lieutenant in the 1st Volunteer Battalion the Leicestershire Regiment, June 30th.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

CAPTAIN A. W. DALBY, Gloucester and Somerset Bearer Company, to be Major, June 30th.

CHANGES OF STATIONS.

THE following changes of stations amongst the officers of the Royal Army Medical Corps have been officially reported to have taken place during May, 1906:

		FROM	TO
Colonel	G. D. N. Leake	Lucknow ...	Naini Tal.
,,	H. J. W. Barrow...	Mian Mir ...	Dalhousie.
,,	O. E. P. Lloyd, V.C.	Dover	Jubbulpore.
Lieut.-Col.	W. Babtie, C.M.G., M.B....	London Dist....	Woolwich.
,,	H. K. Allport, M.D. ...	Bulford ...	Egypt.
,,	J. M. Irwin, M.B.	London ...	War Office.
,,	W. A. Morris...	Sialkot ...	Murree.
,,	C. R. Bartlett	—	W. Africa.
,,	R. J. Geddes, D.S.O., M.B.	Maryhill ...	Aldershot.
,,	J. Meek, M.D.	Kirkee ...	Poona.
,,	T. Daly	Eastern Command. ...	Warley.
,,	J. J. O'Donnell	Leeds	N'cstl-on-Tyne
Major	J. S. Davidson, M.B.	Parkhurst ...	Woolwich.
,,	A. R. Aldridge, M.B.	London Dist....	India.
,,	J. J. Russell, M.B.	Rawal Pindi ...	Sialkot.
,,	R. Holyoake	Mian Mir ...	Solon.
,,	B. H. Scott	Rawal Pindi ...	Murree.
,,	W. C. Poole, M.B....	Waterford ...	Cork.
,,	C. R. Elliott, M.D....	Poona	Dublin.
,,	J. C. Weir, M.B.	London Dist....	Malta.
,,	A. L. Borrodaile, M.B.	Brecon	Trawsfynydd.
,,	W. T. Mould	Delhi	Kailana.
,,	L. Way	Cawnpore ...	Allahabad.
,,	G. A. T. Bray	Meerut... ...	Ranikhet.
,,	J. C. O'Connor, M.B.	Portsmouth ...	Winchester.
,,	J. C. Jameson, M.B.	Woolwich ...	Egypt.
,,	N. Tyacke	Jutogh	Mian Mir.
,,	H. A. Hinge...	Indore	Kirkee.
Captain	R. S. H. Fuhr, D.S.O.... ...	Rawal Pindi ...	Murree.
,,	R. Selby, M.B.	Woolwich ...	Meerut.
,,	A. E. Thorp	Taunton ...	Devonport.
,,	H. B. G. Walton	Devonport ...	Exeter.
,,	J. E. Hodgson	Calcutta ...	Ranikhet.
,,	L. Wood	Eastern Command ...	Woolwich.
,,	H. S Roch	Ballincollig ...	Fermoy.
,,	A. F. Carlyon	Devonport ...	Okehampton.
,,	J. Powell, M.B	Eastern Command ...	Woolwich.
,,	J. G. Foster, M.B.	Dublin ...	Belfast.
,,	H. B Fawcus, M.B.	Scarborough ...	York.
,,	C. H. Straton	Brighton ...	Dover.
,,	G. Carroll	Cahir	Limerick.
,,	G. J. Houghton...	Calcutta ...	Barrackpore.
,,	A. D. Waring, M.B.	Belfast	Ballykinder Camp.
,,	A. F. Weston	Woolwich ...	Colchester.

		FROM	TO.
Captain	A. C. Adderley	York	Scarborough.
,,	W. B. Fry...	Eastern Comd.	Dover.
,,	C. R. L. Ronayne, M.B.	Barrackpore ...	York.
,,	R. F. Ellery	Allahabad ...	Southern Com.
,,	W. J. Waters	Meerut ...	Kailana.
,,	W. R. P. Goodwin ...	Rawal Pindi ...	Murree.
,,	A. R. C. Parsons ...	Southern Com.	Tidworth.
,,	M. W. Falkner	Lucknow ...	Fatehgarh.
,,	R. N. Woodley	Kilworth ...	Queenstown.
,,	J. H. Barbour, M.B. ...	Londonderry .	Ballynarry Cp.
,,	F. E. Rowan-Robinson, M.B.	Belgaum ...	Bombay.
,,	J. B. Clarke, M.B. ...	Agra ...	Chaubuttia.
,,	E. G. Ffrench, M.B. ...	Jamaica ...	Eastern Comd.
,,	A. McMunn	Ambala ...	Jutogh.
,,	E. V. Aylen	Southern Com.	Portsmouth.
,,	S. M. Adye-Curran ...	Dublin ...	Kilbride.
,,	B. A. Craig	Curragh ...	Glen Imaal.
,,	W. F. Tyndale, C.M.G., M.B.	Lucknow ...	Naini Tal.
Lieutenant	C. W. Holden	—	Bulford.
,,	B. G. Patch... ...	Ambala ...	Kasauli.
,,	F. M. M. Ommanney	Somaliland ...	Woolwich.
,,	F. J. Turner ...	Deolalee ...	Aden.
,,	L. Bousfield, M.B.	Malta ...	Egypt. Army.
,,	C. H. Turner ...	Sialkot ...	Rawal Pindi.
,,	W. Byam	Netley ...	Egypt.
,,	H. St. M. Carter, M.D.	Dublin ...	Malta.
,,	G. H. Richard ...	Lebong...	Calcutta.
,,	J. P. Lynch... ...	Barrackpore ...	Lucknow.
,,	C. P. Thomson, M.D.	Aldershot ...	Egypt.
,,	G. W. Heron ...	Millbank ...	,,
,,	T. H. Gibbon, M.D.	R. A. M. Coll. .	,,
,,	G. Ormrod, M.B ...	Meerut... ...	Delhi.
,,	J. A. Anderson, M.B.	Millbank ...	Lark Hill Cmp.
,,	H. G. Sherren	,,	Bulford.
,,	R. A. Bryden	Aldershot ...	Longmoor.
,,	A. E. F. Hastings...	Curragh ...	Dublin.
,,	F. C. Sampson, M.B.	Belfast ...	Finner Camp.

Major J. W. F. Long, retired pay, has been placed in medical charge at Dover Military Prison.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In seventy-six of the largest English towns, including London, 8,441 births and 3,762 deaths were registered during the week ending Saturday last, June 30th. The annual rate of mortality in these towns, which had been 12.9, 12.9, and 13.2 per 1,000 in the three preceding weeks, declined again last week to 12.4 per 1,000. The rates in the several towns ranged from 5.2 in Tottenham, 6.4 in East Ham, 6.6 in Hornsey and in Reading, 6.8 in Grimsby, 7.6 in Southampton, and 7.8 in Wolverhampton, to 16.1 in Gateshead, 16.2 in Halifax, 16.3 in Manchester, 16.7 in Ipswich, 18.2 in Middlesbrough, 19.2 in Oldham, and 21.5 in South Shields. In London the rate of mortality was 11.7 per 1,000, while it averaged 12.6 in the seventy-five other large towns. The death-rate from the principal infectious diseases averaged 1.2 per 1,000 in the seventy-six towns: in London, also, this death-rate was equal to 1.2 per 1,000, while among the seventy-five large provincial towns the rates ranged upwards to 2.4 in Bootle and in Wigan, 2.5 in Liverpool, 2.6 in Leyton, 2.8 in Manchester, 2.9 in Salford, 3.3 in Halifax, and 3.6 in Burnley. Measles caused a death-rate of 1.7 in Manchester, 2.9 in Halifax, and 3.0 in Burnley; scarlet fever of 1.1 in St. Helen's; diphtheria of 1.3 in Salford and 1.6 in Hull; whooping-cough of 1.6 in Bootle; and diarrhoea of 1.6 in Handsworth (Staffs.) and 1.8 in Wigan. The mortality from enteric fever showed no marked excess in any of the large towns, and no deaths from small pox were registered during the week. The number of small-pox patients under treatment in the Metropolitan Asylums Hospitals, which had been 6, 7, and 13 at the end of the three preceding weeks, had declined again to 11 at the end of last week; no new cases were admitted during the week, the numbers being 1, 1, and 7 in the three preceding weeks. There were 2,752 scarlet fever patients in these hospitals and in the London Fever Hospital at the end of last week, against 2,603, 2,677, and 2,692 at the end of the three preceding weeks; 366 new cases were admitted during the week, against 344, 355, and 380 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

During the week ending Saturday last, June 30th, 1,022 births and 497 deaths were registered in eight of the principal Scotch towns. The annual rate of mortality in these towns, which had been 15.6, 15.8, and 16.0 per 1,000 in the three preceding weeks, declined again to 14.5 per 1,000 last week, but was 2.1 per 1,000 above the mean rate during the same period in the seventy-six large English towns. Among these Scotch towns the death-rates ranged from 11.9 in Aberdeen and 12.0 in Leith to 15.2 in Dundee and 21.1 in Perth. The death-rate from the principal infectious diseases averaged 1.7 per 1,000 in these towns, the highest rates being recorded in Glasgow, Edinburgh, and Aberdeen. The 238 deaths registered in Glasgow included 7 which were referred to measles, 2 to scarlet fever, 4 to diphtheria, 4 to whooping-cough, and 9 to diarrhoea; there were also 8 fatal cases of cerebro-spinal meningitis. Three deaths from measles, 2 from diphtheria, and 7 from diarrhoea occurred in Edinburgh; and 3 from whooping-cough and 3 from diarrhoea in Aberdeen.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, June 30th, 579 births and 289 deaths were registered in six of the principal Irish towns, as against 511 births and 326 deaths in the preceding period. The annual death-rate in these towns, which had been 17.8, 19.9, and 15.1 per 1,000 in the three preceding weeks, rose to 15.4 per 1,000 in the week under notice, this figure being 3.2 per 1,000 higher than the mean annual rate in the seventy-six English towns for the corresponding period. The figures ranged from 10.9 in Limerick and 11.7 in Waterford to 18.5 in Cork and 19.8 in Londonderry. The zymotic death-rate during the same period and in the same six Irish towns averaged 2.0 per 1,000, or 1.1 per 1,000 higher than during the preceding period, the highest figure, 7.4, being recorded in Londonderry, while Cork and Limerick registered no deaths under this heading at all. The high rate in Londonderry was due to measles.

BRITISH MEDICAL ASSOCIATION LIBRARY.

Books Needed to Complete Series:

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

American Climatological Transactions. Vols. 1, 4, 5, 6.
——— Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
——— Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 33, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
——— Journal of Ophthalmology. Vols. 1-9.
——— Laryngological Association. Transactions. Vols. 1-6, 8-9.
——— Medical Association. Transactions, 1-28, 30, 31.
——— Otological Society. Transactions. Vol. 3, part 2, 1883.
——— Public Health Association. Transactions. Any vols.
Analyst. Vols. 1-24.
Archiv für Dermatologie und Syphilis. Prior to 1874, 1892, and 1893.
Annals of Surgery. Vols. 1, 11, 13-16, and 26, 27.
Archives Générales de Médecine. 1831-9 inclusive; 1846-55 inclusive; 1857-64 inclusive; 1871.
——— of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
——— of Otology. Vols. 1-7, and 20-22.
——— de Parasitologie. Vols. 1-8.
——— of Pediatrics. Vols. 1-11.
Asylum Journal of Mental Science. Vol. 1, 1854.
Bentley and Trimen. Atlas of Medicinal Plants.

Vacancies and Appointments.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column, advertisements must be received not later than the first post on Wednesday morning.

VACANCIES.

BANBURY: HORTON INFIRMARY.—House-Surgeon. Salary, £80. per annum.

BURNLEY: VICTORIA HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

CAIRO: KASR-EL-AINY HOSPITAL.—Medical Tutor and Registrar. Salary, £400 per annum.

CAIRO: SCHOOL OF MEDICINE.—Professor of Midwifery and Gynaecology. Salary, £400 per annum.

CANCER HOSPITAL, Fulham Road, S.W.—Honorary Medical Officer in charge of the Electrical Department.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Male House-Physician. Salary at the rate of £50 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Assistant House-Surgeon. Salary, £30 for six months.

GLOUCESTER: GENERAL INFIRMARY.—Assistant House-Surgeon. Salary at the rate of £30 per annum.

GREAT NORTHERN CENTRAL HOSPITAL.—Ophthalmic Surgeon to Out-patient Department.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House Physician; (2) Assistant Casualty Medical Officer; (3) Radiographer. Salary for (1) and (2), £20 each for six months.

HULL: ROYAL INFIRMARY.—Casualty House-Surgeon. Salary, £50 per annum.

LEEDS UNIVERSITY.—Lecturers in (1) Dental Surgery; (2) Operative Dental Surgery; (3) Dental Anatomy and Physiology; (4) Dental Mechanics.

LITTLEMORE PAUPER LUNATIC ASYLUM, near Oxford.—Second Assistant Medical Officer. Salary, £150.

LIVERPOOL STANLEY HOSPITAL.—Lady Honorary Medical Officer for Women's Diseases.

METROPOLITAN WATER BOARD.—(1) Junior Chemical Assistant. (2) Junior Bacteriological Assistant. Salary, £150, rising to £200 per annum each.

NEWHAVEN UNION.—(1) District Medical Officer and Public Vaccinator; (2) Medical Officer to the Workhouse. Salary for (1), £90 per annum and fees; for (2), £70 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House-Surgeon. Salary at the rate of £50 per annum.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester Square, W.C.—Demonstrator in Mechanical Pupils' Department. Stipend, £120. rising to £150.

SHEFFIELD ROYAL HOSPITAL.—Male Assistant House-Surgeon. Salary, £50 per annum.

STOCKPORT INFIRMARY.—Junior Assistant House-Surgeon. Salary at the rate of £40 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary, £70 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces vacancies in the office of Certifying Factory Surgeon at Staindrop, co. Durham; Whaley Bridge, co. Chester.

APPOINTMENTS.

CRITCHLEY, Harry G., M.A., M.D., Electro-Therapeutist to the Miller Hospital, Greenwich.

DURNO, Miss M. W., M.B., B.Ch.Aberd., Resident House-Surgeon to the East End Children's Hospital, Sheffield.

GORNALL, T. B., M.B., Ch.B.Edin., District Medical Officer of the Kingston Union.

GRAY, A. M. H., M.D., B.S.Lond., Resident Medical Officer to University College Hospital.

HEWER, H. McD., M.B., C.M.Edin., District Medical Officer of the Spalding Union.

HUSTLER, G. H., M.B., Ch.B.Leeds, Assistant House-Surgeon at the Royal Devon and Exeter Hospital, Exeter.

MCKANE, G. O., L.R.C.P.Edin., L.F.P.S.Glas., District Medical Officer of the Grimsby Union.

ROSE, Frank A., F.R.C.S., Surgeon to the Ear and Throat Department, with charge of out-patients, at the Great Northern Central Hospital, Holloway.

SALMON, A. G., M.D., B.S.Lond., Medical Officer of Health to the Bodmin Rural District.

SHEPHERD, John, M.A., M.B., Physician to the Ayrshire County Sanatorium at Glenayton, New Cumnock.

SMITH, S. Maynard, M.B., B.S.Lond., F.R.C.S.Eng., Surgeon in charge of out-patients to St. Mary's Hospital.

SUTHERLAND, J. R., M.B., Ch.B.Glas., Junior House-Surgeon at the Blackburn and East Lancashire Infirmary.

TRIBE, R. H., M.R.C.S., L.R.C.P., Anaesthetist to the Victoria Hospital for Children, Chelsea.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 3s. 6d., which sum should be forwarded in post-office orders or stamps with the notice not later than Wednesday morning, in order to ensure insertion in the current issue.

BIRTHS.

EYRE.—On June 7th, at Holmesdale, Wandsworth Common, to Dr. and Mrs. Eyre, a son.

MASSON.—At Bankipore, Patna, Bengal, on June 3rd, the wife of Captain James Masson, M.B.Edin., M.A., B.Sc., I.M.S., of a son.

MARRIAGES.

WHARTON-ORME.—June 28th, at the Baptist Church, King Street, Oldham, by the Rev. J. T. Marshall, D.D., Principal of the Baptist College, Manchester, assisted by the Rev. Stuart Caldwell, Pastor of the church, Alwyn Wharton, M.B., Ch.B., eldest son of Dr. Wharton of Oldham, to Katie, only daughter of Daniel Orme, Wellington House, Oldham. (At home, 102, King Street, Oldham, August 14th, 15th, 16th.)

WILLETT-SERRIDGE.—June 26th, at St. Bride's Church, Catharine Street, Liverpool, by the Rev. James J. Addenbrooke, M.A., Vicar of Whixall, Salop, assisted by the Rev. Henry Moody, M.A., Vicar of Welshampton, Salop, the Rev. G. H. Lunn, Vicar of St. Mary Magdalene's, Liverpool, and the Rev. S. E. Dymott, of St. Bridget's, Wavertree, James Hayward Willett, M.B., Ch.B., to Gertrude Eileen Serridge, youngest daughter of George H. Serridge, Esq., The Ridge, Durban, South Africa. (At home, at 25, Catharine Street, July 31st to August 4th. South African papers please copy.)

DIARY FOR THE WEEK.

TUESDAY.

SOCIETY FOR THE STUDY OF INEBRIETY, 11, Chandos Street, Cavendish Square, W., 4 p.m.—The Rev. Canon J. W. Horsley, M.A. (late and last Chaplain of H.M. Prison, Clerkenwell), will open a discussion on The Relations of Inebriety and Crime.

THURSDAY.

BRITISH GYNAECOLOGICAL SOCIETY, 20, Hanover Square, W., at 8 p.m.—Specimens by Dr. Macnaughton Jones, Dr. Jervois Aarons, Dr. Maunsell. Paper, Dr. James Oliver: A Study of Hydatidiform Mole, with records of three typical cases. Dr. Macnaughton Jones: Remarks on Closure of Small Recto-Vaginal Fistula involving the Sphincter.

FRIDAY.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos Street, W., 8 p.m. Card specimens: 8.30 p.m., Papers—Mr. W. T. Holmes Spicer: Intraocular Injectives. Mr. A. R. Brailey: Congenital Distichiasis. Mr. C. H. Usher (Aberdeen): A Note on the Choroid at the Macular Region.

POST-GRADUATE COURSES AND LECTURES.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn Road, W.C.—Wednesday, 5 p.m., Nose.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.—Clinical Demonstrations in Medicine and Surgery 2.30 and 3.15 p.m. respectively on Monday, Tuesday, Wednesday, Thursday, and Friday: Throat and Ear, 4 p.m., Monday; Skin, 4 p.m., Tuesday; Ophthalmology, 4 p.m. Wednesday; Radiography, 4 p.m. Thursdays. Out-patient Demonstrations, Medical and Surgical, 10 a.m. daily. Throat and Ear, noon Monday and Thursday; Eye, 11 a.m. Wednesday. Skin, noon Friday. Operations, 2.30 p.m. daily.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies Street, W.C.—The following clinical demonstrations have been arranged for next week at 4 p.m. each day: Monday, Skin: Tuesday, Medical; Wednesday, Surgical: Thursday, Surgical; Friday, Eye. Lectures at 5.15 each day will be given as follows: Monday, Blepharitis. Tuesday, Some Points in the Treatment of Epilepsy. Wednesday, Pulse Tracings and their Clinical Significance. Thursday, Peritonitis in Children.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Tuesday, 3.30 p.m., Speech Defects. Friday, 3.30 p.m., Surgery of the Nervous System.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.—Daily, 2 p.m., Medical and Surgical Clinics; 2.15 p.m., X-rays: 2.30 p.m., Operations. Mondays and Thursdays, Eyes. Tuesdays and Fridays, 2 p.m., Skin. Tuesdays and Fridays, 2 p.m., and Wednesdays and Saturdays, 10 a.m., Throat, Nose, and Ear. Wednesday, 10 a.m., Diseases of Children. Lectures at 5 p.m. Monday, Ocular Diseases of Childhood, and their Treatment. Tuesday, Retroflexion; Symtpoms and Treatment. Wednesday, Practical Medicine. Thursday, Practical Surgery. Friday, Anaesthetics and their Administration.

BOOKS, ETC., RECEIVED.

Aus der Universitäts-Massageanstalt an der Kgl. Charité. Unter Leitung des Prof. Dr. J. Zabludowski. Zur physikalischen Therapie der habituellen Obstipation und der sexuellen Neurasthenie. Von Prof. Dr. J. Zabludowski. Berlin: A. Hirschwald. 1906. M. 1.

Consumption, Its Relation to Man and His Civilization, Its Prevention and Cure. By J. B. Huber, A.M., M.D. Philadelphia and London: J. B. Lippincott and Co. 15s.

Physical Efficiency. By J. Cantlie, M.A., M.B., D.P.H. London and New York: G. P. Putnam's Sons. 1906. 3s. 6d.

The London Manual for 1906. Edited by R. Donald. London: E. Lloyd, Ltd. 1906. 1s. 6d.

Klinik für psychiche und nervöse Krankheiten. Herausgegeben von R. Sommer. I. Band. 2 Heft. Halle a.S.: C. Marhold. 1906. M. 3.

The Care of Children. By R. J. Blackham, D.P.H. Revised edition. London: The Scientific Press, Ltd. 1s. 6d.

Health Talks About Children (An Appeal for the Child). By J. Grimshaw, M.D., B.S., D.P.H., M.R.C.S. Birkenhead: Brimmel's Printing Works. 1906. 1s.

London: Baillière, Tindall and Cox. 1906:
Manual of Anatomy, Systematic and Practical, including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Vol. i. Osteology; Upper Limb; Lower Limb. 12s. 6d.
Lectures on Midwifery for Midwives. By A. B. Calder, M.B., M.R.C.S. 5s.
Phlebitis and Thrombosis. The Hunterian Lectures, 1906. By W. Haward, F.R.C.S. 5s.

The Birds of the British Islands. By C. Stonham, C.M.G., F.R.C.S., F.Z.S. Vol. i, part i. London: E. Grant Richards. 1906. 7s. 6d.

Handbuch der Gerichtlichen Medizin. Herausgegeben von Dr. A. Schmidtmann. Unter mitwirkung von Drs. A. Haberda, Kockel, Wachholz, Puppe, Zeimke, Ungar und Siemerling. Neunte Auflage. Des Casper-Liman'schen Handbuches. Dritte Band. Berlin: A. Hirschwald. 1906. M.16.

Notable Scottish Trials Series. Trial of Eugène Marie Chantrelle. Edited by A. D. Smith, F.S.A. London: Sweet and Maxwell, Ltd. 5s.

Student's Handbook of Operative Surgery. By W. I. de C. Wheeler, B.A., M.D., F.R.C.S. London: Baillière, Tindall and Cox. 1906. 5s.

Introduction to a New Method of Respiratory Vocal Re-education. By F. M. Alexander. London: Baillière, Tindall and Cox. 1906. 1s.

McDougall's Health Reader. London: McDougall's Educational Co., Ltd. 6d.

Trachomtherapie in der verseuchtesten Gegend Ungarns. Von Dr. M. Falta. Berlin: S. Karger; and London: Williams and Norgate. 1903. M.2.

Paris: F. Alcan, 1906:
La Mélancolie. Etude Médicale et Psychologique. Par R. Masselon. 1906. Fr.4.
Les Embolies Bronchiques Tuberculeuses. Par le Dr. Ch. Sabourin. Fr.4.

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CALENDAR OF THE ASSOCIATION.

Date.	Meetings to be Held.
JULY.	
7 SATURDAY...	Oxford and Reading Branch, Annual Meeting, Library of the Royal Berkshire Hospital. 5 p.m.; Dinner, Queen's Hotel, Reading, 7 p.m.
8 Sunday	
9 MONDAY	
10 TUESDAY.....	
11 WEDNESDAY	Dorset and West Hants Branch, Abbotsbury. North Wales Branch, Annual Meeting, Grand Hotel, Llandudno, 2 p.m.; Branch Council, 1.45 p.m.; Dinner, 5.30 p.m.
12 THURSDAY...	
13 FRIDAY.....	London: Central Ethical Committee, 2 p.m. Hampstead Division, *Metropolitan Counties Branch*.
14 SATURDAY...	
15 Sunday.....	
16 MONDAY	London: Election Returns Committee, 2.30 p.m.
17 TUESDAY.....	
18 WEDNESDAY	
19 THURSDAY...	
20 FRIDAY	
21 SATURDAY...	
22 Sunday	
23 MONDAY	
24 TUESDAY ...	Annual General Meeting, Caxton Hall, Caxton Street, Victoria Street, S.W., 10 a.m. Annual Representative Meeting, Caxton Hall, Caxton Street, Victoria Street, S.W., immediately after Annual General Meeting.
25 WEDNESDAY	Annual Representative Meeting, Caxton Hall, 10 a.m.
26 THURSDAY...	Annual Representative Meeting, Caxton Hall, 10 a.m.
27 FRIDAY	Annual Representative Meeting, Caxton Hall, 10 a.m. *(If required.)*
28 SATURDAY...	
29 Sunday	
30 MONDAY	
31 TUESDAY.....	
AUGUST	
1 WEDNESDAY	
2 THURSDAY...	
3 FRIDAY	
4 SATURDAY...	
5 Sunday	
6 MONDAY	*Bank Holiday.*
7 TUESDAY.....	
8 WEDNESDAY	
9 THURSDAY...	
10 FRIDAY.....	
11 SATURDAY...	
12 Sunday.....	
13 MONDAY	
14 TUESDAY.....	
15 WEDNESDAY	
16 THURSDAY...	
17 FRIDAY	
18 SATURDAY...	

MEMBERSHIP OF THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association exists for the promotion of medical and the allied sciences, and the maintenance of the honour and the interests of the medical profession.

The Annual Subscription to the British Medical Association is £1 5s. 0d., and the British Medical Journal is supplied weekly, post free, to every member of the British Medical Association wherever he may reside.

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Article III.—Any Medical Practitioner registered in the United Kingdom under the Medical Acts and any Medical Practitioner residing within the area of any Branch of the Association situate in any part of the British Empire other than the United Kingdom, who is so registered or possesses such medical qualifications as shall, subject to the Regulations, be prescribed by the Rules of the said Branch, shall be eligible as a Member of the Association. The mode and conditions of election to Membership shall from time to time be determined by or in accordance with the By-laws. Every Member, whether one of the existing Members or a subsequently-elected Member, shall remain a Member until he ceases to be a Member in accordance with the provisions hereof.

By-law 1.—Every Candidate for Membership of the Association shall apply for election in writing, addressed to the Association, and stating his agreement, if elected, to abide by the Regulations and By-laws of the Association, and the Rules of such Division and Branch to which he may at any time belong, and to pay his subscription for the current year.

By-law 2.—Every candidate who resides within the area of a Branch shall forward his application to the Secretary of such Branch. Notice of the proposed election shall be sent by the Branch Secretary to the General Secretary of the Association, and to every Member of the Branch Council, and the candidate, if not disqualified by any Regulation of the Association, may be elected a member of the Association by the Branch Council at any meeting thereof held not less than seven days (or such longer period as the Branch may by its Rules prescribe) after the date of the said Notice. A Branch may by special Resolution require that each candidate for election to the Association shall furnish a certificate from two Members of the Association to whom he is personally known. Officers of the Navy, Army, and Indian Medical Services on the Active List are eligible for election through the Council or a Branch without approving signatures as laid down in By-law 3.

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